

Fostering a Healing and Creativity Environment

Introduction

Supporting a group of teens who had been excluded from mainstream schools revealed how influential the environment could be and forced me to wonder what sort of space could have a positive effect on young people. What and how do environmental elements influence students' creativity and wellbeing?

As Bruce Moon said, "Every aspect of the physical space of the therapeutic studio either helps or impedes the creation of the ambience of safety and creative contagion. The colour of the walls, the flooring, the windows, the furniture, the floor plan, the organization of the space all have the potential to enhance the therapeutic milieu or detract from it (Moon, 1998, p.156)." The goal of this essay is to identify the potential environmental components which influence the art therapy process and offer advice for therapists and designers to better arrange the space.

Creative and healing circumstances

Before looking at a specific item in an art therapy room, we need to understand the creative and healing core of art therapy. Why do humans create? In what circumstance does creative behaviour most likely happen? To make things clear, the creativity in this paper is not only about trying new things (innovation) but also providing aesthetic experiences. Some evolutionary scholars believe creative action benefits survival as it builds prediction ability. Likewise, the aesthetic experience acts as a guide in the exploration of the imaginary world (Gazzaniga, 2008). In fact, human beings are not the only creatures which create. Some chimpanzees, especially young chimps, are keen to draw. They spontaneously make their own art without training (Gazzaniga, 2008; Matsuzawa, 2011). However, this kind of activity stops when chimpanzees feel insecure and must fight for external benefits (Gazzaniga, 2008). In sum, security represents the prerequisite of any creative action, while aesthetics experience is the motive. The environmental factors via providing a sense of safety and aesthetics will be discussed in the coming sections.

Alongside creativity, a successful therapeutic process should be measured by the progression of healing. Different from "cure", "healing" is not an end state; it is a process of "positive change, finding meaning, and movement towards self-realization of wholeness (Firth et al. 2015, p.12 cited DuBose et al. 2018, p.44)". Indeed, healing happens via creative action, however, external factors can also play a role. In 1992, a 144-sample study of adolescents' favourite places done by Korpela shows that the physical environment can help young people regulate emotion (Korpela, 1992). The environment could influence healing in two ways: providing a direct impact on healing, and affecting the healing process by altering human behaviour (DuBose et al., 2018).

The following paragraph will start by focusing on the physical conditions which influence function, how spatial conditions, such as boundary and layout, construct human behaviour. It will be followed by expounding on the healing power of the environment by looking at three specific elements: windows, art decoration and room colour.

Factors in support of art therapy processes

“I often tell my graduate students that their primary job in treating adolescents is to take good care of the studio, so that the studio can take good care of the adolescents.”

– Bruce L. Moon (1998, p.152)

In 1998, art therapist Bruce Moon published “The Dynamics of Art as Therapy with Adolescents”. In it, he mentioned three guiding principles in setting up art therapy studios which were security, predictability and focusing on both art creation and relationship establishing (Moon, 1998). Among them, security was most closely related to the spatial experience. As mentioned, providing a sense of safety is essential for generating creativity, especially for those who are anxious and insecure (Moon, 1998; Danieli et al., 2019).

- **Boundary**

The concept of setting a boundary has been mentioned in most instructions of art therapy. It usually indicates having a clear framework for both time and space (Case & Dalley, 2014; Wang, 2017). It allows art therapists to set up and execute rules. For example, food is inhibited in the room (Wang, 2017). Before entering the room, participants need to transfer their attitude or behaviour. A clear boundary provides a sense of safety. Physically, the boundary should be a solid and tangible form which blocks external interruption including noise, the sight from others and unpredictable stimuli. This can also link back to one of the Moon's three principles— predictability, and could be seen as a part of safety (Moon, 1998). Maintaining a boundary helps keep the room as consistent as possible (Case & Dalley, 2014). The creative process of the adolescent is filled with the unpredictable, thus, we could see the place as a constant and predictable container to contain the progression (Moon, 1998). It is also essential for those who are severely mentally ill. For psychotic patients, familiarity stabilizes delusions and comprehension (Connellan et al., 2013).

- **Layout**

By contrast, in seeking to understand what sort of space is regarded as secure, we might look to spaces which evoke negative feelings. A releasing place shouldn't be cramped. In 2013, Connellan and colleagues did a systematic review of mental health and architecture. They found that crowding increased the risk of violence because of the loss of privacy and control (Connellan et al., 2013). The art therapy room should contain sufficient space for people to wander without interrupting others (Wang, 2017). Desks represent individual immediate boundaries (Wang, 2017) which allow students to freely create at their own pace (Case & Dalley, 2014). Storage is another important consideration, as the approach to material impacts the art therapy process (Danieli et al., 2019). It should be easy to access and displayed clearly. A separate storage room should be avoided.

The healing environment

Interests in the healing environment can be seen in the increasing literature of environmental psychology and evidence-based design. Most of the studies are derived from the field's pioneer, Roger Ulrich and his 1984 research on window views in hospital chambers (Ulrich,

1984; Sternberg, 2009; Nanda et al., 2008). Ulrich and colleagues published a series of studies on the environmental impact in the health care setting. In 1991, he mentioned the notion of positive distractions, which alleviate stress response and block worrisome thoughts (Ulrich, 1991; Nanda et al., 2008). He emphasized the strong connection between human wellness and an environment with "a moderate degree of positive stimulation (Ulrich, 1991, p.102)". This novel idea of viewing lively nature through windows has been extended to the field of visual art and other visual elements. The following three elements— windows, art decoration, and colour scheme— are widely discussed.

- *Windows*

Windows, as a bridge connecting indoor space to outdoor, play a vital role in the health-care environment. Attitudes toward windows have varied over time. Initially, windows were created to bring in essential fresh air and light. In the 1970s, with the advance of artificial lighting and mechanical ventilation and the rising awareness of energy conservation, the necessity of the window decreased. Windows shrank in response (Farley & Veitch, 2001). However, more evidence indicated that windows are not simply the sources of air and light, but have a profound impact on human physiological and psychological health. In 1972, a report revealed the adverse effects of a windowless environment for surgical patients. Within the survey, 40% of the patients who stayed in a windowless intensive care unit (ICU) had developed post-operative delirium, but only 18% of those who could see a window had the issue. Moreover, the rate of post-surgical depression was higher in the windowless units (Farley & Veitch, 2001). The presence of a window in ICU also shortens the average length of stay (Chiu et al., 2017).

To optimise the healing effect of windows for art therapy, the view beyond the window needs to be considered. Looking out on nature helps reduce stress and anxiety (Gazzaniga, 2008). It also provides an aesthetic experience, which elicits positive feelings and serves as inspiration for creativity. In general, humans prefer natural views rather than urban views (Ulrich, 1984; Gazzaniga, 2008; Pasanen et al., 2018). This could be attributed to our innate mechanism. Researchers discovered the mathematics algorithm beneath the aesthetic preference for natural scenes. They found that human beings prefer views with a fractal dimension of about 1.3, which corresponds to the fractal dimension of a tree silhouette (Aks & Sprott, 1996; Gazzaniga, 2008).

From a psychological perspective, the natural environment provides "a sense of being away, a sense of being in an entirely different world, a feeling of fascination, and compatibility with the environment (Korpela, 1992, p.250)". It supports restorative experiences and offers affective benefits (Pasanen et al., 2018). In Ulrich's pioneer study, he compared surgical inpatients whose chamber had a window with tree views to those whose windows had wall views. The results show that the tree-view group recovered quicker than their counterpart, took fewer strong and moderate pain medication, and gave less negative comments (Ulrich, 1984; Sternberg, 2009; Gazzaniga, 2008; Pearson et al., 2019). Surprisingly, laboratory research measuring blood pressure and muscle tension reveals that a mere five-minute visual exposure to nature can help activate the stress-reduction mechanism (Ulrich, 1991). Viewing natural scenes also facilitates creativity and working efficacy. It promotes attentional recovery by reducing physical and mental fatigue (Pasanen et al., 2018). According to the Attention Restoration Theory, nature helps attention performance by affecting the prefrontal cortex-mediated executive attentional

system (Atchley et al., 2012). Furthermore, vivid cognitive stimuli of nature fosters creativity (Pasanen et al., 2018). This stimulation is at the right proportion, which is high enough to inspire but not too high to hijack executive attention (Atchley et al., 2012).

Windows introduce another healing element from nature— sunlight. Before electric-light was widely used, hospitals were full of large windows not only for visibility but helping patients to heal (Sternberg, 2009). There is no doubt that sunlight plays a vital role in mental health. Beauchemin and Hays studied the influence of sunlight on depressed patients. They found that the average hospitalization of patients who live in sunny rooms is 15% shorter than for those who live in dull rooms (Beauchemin & Hays, 1996; Connellan et al., 2013). More interestingly, different time periods of sunlight during a day influence people differently. A study released in 2001 shows that bipolar in-patients who live in wards with an eastern window stayed 3.67 less days than those with a western view (Benedetti et al., 2001). In contrast to the positive effect of sunlight, studies had shown the negative effects of fluorescent lamps on people, especially those who found it difficult to concentrate or are hyperactive because fluorescent bulbs cause uneasy excitement (Moon, 1998).

In 1933, Paimio Sanatorium, a tuberculosis sanatorium designed by a reputed Finnish architect Alvar Aalto, was completed. The wing of wards faces south (slightly twisted towards East) with big windows to capture sunlight. Patients could see a pine forest through the windows. This set up a model for later hospitals. (Sternberg, 2009; Bianchini, 2020). However, southern facing windows are not always appreciated. Evidence shows that glare and heat could evoke negative mood and cause executive errors (Connellan et al., 2013). Some adolescents reported negative feelings towards natural light-filled rooms because they felt less privacy (Cartland et al., 2018). In “The Dynamics of Art as Therapy with Adolescents”, Moon suggested that the ideal art therapy room is the one with windows facing north (Moon, 1998). Besides, the room should involve seats which are relatively shady. Regarding the window shape and scale, researchers found that width is more influential than height, possibly due to the amount of visual information. Making a window taller does not provide as much content as widening the window (Farley & Veitch, 2001). Or, the finding could be explained by an ergonomic reason— sightline. Normally, the resting sightline ranges from 10-15 degrees below the horizontal (Kroemer, 2017), while the horizontal sight range is more flexible. Thus, no matter how tall the window is, the extra height is out of our comfort zone.

- ***Art decoration***

A picture of nature could generate the same positive response as actual natural scenes do (Lankston et al., 2010; Karnik et al., 2014; Devlin et al., 2019). Sometimes, people use a poster of an outdoor scene as an alternative when there is no window in the space (Farley & Veitch, 2001). The healing mechanism behind displaying artworks is similar to windows. It serves as a positive distraction (Nanda et al., 2008; Nielsen et al., 2017; Devlin et al., 2019) and provides a pleasing aesthetic environment. Except for the innate pleasure explicit in viewing beauty, art has the potential to intellectually engage the viewers at the conscious level (Karnik et al., 2014). Nielsen and colleagues believed that art can serve as “a generator of memories, through which life experiences can be assembled into a meaningful whole (Nielsen et al., 2017, p.8).”

Using art in healthcare settings is not new. To date, an increasing number of researchers have devoted themselves to studying the influences of visual art in healthcare settings. In 2014, Karnik and colleagues did a questionnaire survey of patients and visitors' experience of art collections in a tertiary care academic medical centre in the United States. Although not every respondent noticed the displayed artworks, most of the people noticed the artworks and reported positively about them. Among these, 73% said that they felt a certain improvement in their mood. Over sixty per cent of the respondents reported the reduction of stress, and 39% reported an advance of their comfort-to-pain level. The data were categorized by respondents' health issues. It indicates that patients with PTSD and generalized anxiety experienced the most positive reflection (Karnik et al., 2014). There was another investigation done by Nielsen and colleagues in 2017. The researchers did a two-week observation on the dynamic in a patient's dayroom with or without art pieces displayed. The comparison between Week 1, where nothing was displayed, and Week 2 (with art) shows that people tend to locate themselves close to the artwork. However, when the investigator interviewed them about their reason for the choice, they seldom mentioned the art (Nielsen et al., 2017). This indicates that the appeal of art could happen at an unconscious level. Nielsen and colleagues suggested that a space hanging with paintings generates a feeling of relief and safety because it instils a "home-like" atmosphere. Besides, the unexpected art decoration in a hospital sets people's mind at rest because of the impression of luxury. Patients and their families may deem the institution to have surplus resources to take care of the environmental conditions (Nielsen et al., 2017).

The physiological response of viewing natural images is similar to exposure to actual natural scenes. It reduces the level of anxiety and the intake of strong painkillers (Nanda et al., 2008). It is not surprising that natural representational art is commonly seen in hospitals. Similar to window views, photographs with nature dominant content elicited more positive changes than building pictures (Ulrich, 1991; Nanda et al., 2008). Yet, how about other content? In light of Ulrich's (1991) description, he maintained three elements as positive distractions for humans, which are positive facial expression (happy or caring face), animals, and green or blue landscapes. Furthermore, there are some age and gender differences in the preferences for these distractions (Nanda et al., 2008). An interview done in a pediatric hospital indicated that young people highly rated themes related to the ocean, and only the youngest group preferred animal images (Coad & Coad, 2008; Pearson et al., 2019).

In 1993, Ulrich and colleagues made a comparison of surgical patients exposed to natural images and computer-generated abstract pictures. They found that patients who stayed in the ICU with images of blue and green landscapes were less dependent on medication and encountered less post-operative

anxiety. Ulrich suggested that abstract images, which lack clarity of content, may evoke negative effects for mental patients because of their chaotic, uncertain nature (Ulrich, 1991). The results related to computer-generated abstract artworks have led some researchers to doubt whether abstract images created by people would produce different results (Nanda et al., 2008; Lankston et al., 2010; Karnik et al., 2014). This suspicion has been disproved by later research using well known abstract paintings (Nanda et al., 2008).

Based on the above findings, although serene nature-depicted artwork seems to be the best option for art therapists to decorate the working space, Moon suggested the presence of disturbing imagery is required. An art therapy room should set up a milieu which encour-

ages participants to express without hesitation. An uneasy image could cause a certain negative feeling, yet, it represents a hint that the space is able to contain this kind of disturbance (Moon, 1998).

In addition to the content of artworks, size matters. A 2006 study of positive distraction, done by deKort et al., reveals that viewing a natural film on a larger screen (72") causes more positive physiological responses than on a smaller screen (31") (as cited in Devlin et al., 2019). Further, Devlin and colleagues conducted a study of the size of art displayed in an exam room. The content of the image is a common tourist site, Lake Bled, and the four parameters include: blank wall, small, medium, and large. The result shows that the large image enhances participants' (both patients and physicians) waiting experience most positively. This could be attributed to the "Canonical-size effects on aesthetic judgments (Linsen et al. 2011, p. 298 cited Devlin et al. 2019, p.2)". In other words, human's preference of the scale of an image is highly influenced by their knowledge of the real object (Devlin et al., 2019). However, this hypothesis should be further evaluated by images with smaller objects.

- *Colour scheme*

As the aforementioned findings suggest, generally, humans appreciate blue and green natural images. Interestingly, this preference seems to extend to human perception of colours. The debate between whether the emotional responses toward colour is nature or nurture has been long-lasting. Some scholars believe that colour associated emotional response is intuitive and has universal implications, yet, others deem that it could vary individually by socio-cultural, religious context or personal experiences (Hettiarachchi & De Silva, 2012). Even so, there are still certain patterns which we can follow to enhance the art therapy experience.

The most commonly used colour for walls is white. It is not only because white is a neutral colour, but because of its enlarging effect (Kwallek, 1996; Souza, 2020). In art therapy settings, with regards to functional purpose, there should be at least one area of wall left blank and white. The intention of a pure white surface is for young people to demonstrate their creation away from visual noise and view their work from a certain distance to gain another perspective. This is not to say that we should not use colours for walls in art therapy rooms. In fact, a purely white room may not be optimal for art therapy. Researchers claim that it could reduce working performance due to glare and monotony (Kwallek, 1996). Besides, the way we paint walls is an effective interior-design tool to adjust the perception of a space. Lighter colours enlarge the space, while darker colours compress. The design technique has been broadly used in spaces with poor conditions. For instance, a narrow space could be seen wider by making the ceiling and back wall in the same darker colour. If space seems too spacious, an eye-catching wall with darker colour shortens the space and provides a feeling of intimacy. Painting the ceiling with darker colour also helps compress the impression of spaciousness, and sets up a pleasing and welcoming environment (Souza, 2020).

Thus, which colour is better for an art therapy room? Lankston and colleagues (2010) proposed, "Colours that elicit high levels of pleasure with low levels of arousal are most likely to induce a state of calm, while those causing displeasure and high levels of arousal may provoke anxiety (Lankston et al., 2010, p.496)". The two colours standing on the pole

of the arousal-calm spectrum are, unsurprisingly, red and blue. Red is usually linked with blood, danger, or emergency, while blue is commonly associated with sky, ocean, and peace (Mehta & Zhu, 2009). Many investigations indicate blue as the most popular colour across ages (Kwallek, 1996; Mehta & Zhu, 2009; Park, 2009). In 2009, Jin Park studied children's colour preferences in both healthy children and pediatric patients. The results demonstrated that blue was rated first, followed by green. Red and yellow alike are less favourite. There is no significant preferential difference between healthy and unhealthy groups (Park, 2009). Nevertheless, there is still a subtle deviation within the blue spectrum. In fact, most young people prefer mid blue-green, while certain elder children (pre-puberty and above) favour darker blue (Coad & Coad, 2008).

There are several beneficial effects of applying blue to a room. Researchers have found that blue light helps calm violent patients, lessen infants' activity and crying, and alleviate respiratory movement and eye-blinking frequency (Hettiarachchi & De Silva, 2012). A study shows that, compared to red and yellow, blue and green scores lower in state-anxiety (Lankston et al., 2010). The colour blue is also claimed to enhance creativity (Mehta & Zhu, 2009; Hettiarachchi & De Silva, 2012). Mehta and Zhu designed an experiment to test cognitive task performances in red and blue environments. They found that participants scored higher in blue conditions in the Remote Associates Test, which is often used to test creativity. By contrast, they scored lower in blue than in red environments in the detail-oriented cognitive tasks (Mehta & Zhu, 2009). This could be linked back to the correlation between safety and creativity. Because of the arousal nature of red, the stress response of "fight or flight" may be triggered and inhibit creative thought.

Conclusion

There exists no universally defined proper environment for conducting art therapy because "healing is ultimately a very personal process that is heavily influenced by individual characteristics and social relationships (DuBose, et al., 2018, p.47)", but evidence can lead therapists towards more optimal condition for spaces conducting art therapy. A pleasant environment not only affects service users but also helps caregivers. This would then, in turn, form a positive feedback mechanism. In sum, a successful art therapy process should happen in a secure environment with a clear boundary and rational layout. It is favoured to have a wide window inducing nature and sunlight. The space should display a few art pieces with varied content including peaceful nature themes. Applying colour schemes could be an efficient method to improve poorly designed spaces. Yet, keeping at least one wall blank and white is vital. When choosing the colour scheme for art therapy rooms, cool colours such as blue and green are preferable to warm colours such as red and yellow.

The research into the appropriate therapeutic environment is nascent and ongoing. The indicators from art therapy antecessors are clear, yet the principles are empirically-based and lack scientific approval. Moreover, the population that forms the basis of most environmental healing studies is patients with physiological issues instead of with mental disorders. There are still variables worthy of consideration based on ecological and cultural differences. Certainly, further evaluation will be necessary to establish lasting guidelines.

References & Bibliography

- Aks, D. J., & Sprott, J. C. (1996). Quantifying Aesthetic Preference for Chaotic Patterns, *Empirical Studies of the Arts*, 14(1), 1–16.
- Atchley, R. A., Strayer, D. L., & Atchley, P. (2012). Creativity in the wild: Improving creative reasoning through immersion in natural settings. *PLoS ONE*, 7, e51474.
- Beauchemin, K. M., & Hays, P. (1996). Sunny hospital rooms expedite recovery from severe and refractory depressions, *Journal of Affective Disorders*, 40, 49-51.
- Benedetti, F., Colombo, C., Barbini, B., Campori, E., & Smeraldi, E. (2001). Morning sunlight reduces length of hospitalization in bipolar depression, *Journal of Affective Disorders*, 62(3), 221-223.
- Bianchini, R. (2020). Aalto's Paimio Sanatorium and the birth of the modern hospital, in *inexhibit*, Retrieved from <https://www.inexhibit.com/case-studies/aaltos-paimio-sanatorium-and-the-birth-of-the-modern-hospital/> (Accessed on: 03 May 2020)
- Cartland, J., Ruch-Ross, H. S., Carr, L., Hall, A., Olsen, R., Rosendale, E., & Ruohonen, S. (2018). The Role of Hospital Design in Reducing Anxiety for Pediatric Patients. *HERD: Health Environments Research & Design Journal*, 11(3), 66–79.
- Case, C., & Dalley, T. (2014). Chapter 3: The art therapy room, *The Handbook of Art Therapy*, Routledge.
- Chiu, W-C., Chang, P-S., Hsieh, C-F, Chao, C-M., & Lai, C-C. (2017). The impact of windows on the outcomes of medical intensive care unit patients. *International Journal of Gerontology*. 12(1).
- Coad, J., & Coad, N. (2008). Children and young people's preference of thematic design and colour for their hospital environment. *Journal of Child Health Care*, 12(1), 33–48.
- Connellan, K., Gaardboe, M., Riggs, D., Due, C., Reinschmidt, A., & Mustillo, L. (2013). Stressed Spaces: Mental Health and Architecture, *HERD: Health Environments Research & Design Journal*, 6(4), 127–168.
- Danieli, Y., Snir, S., Regev, D., & Adoni-Kroyanker, M. (2019). Suitability of the art therapy room and changes in outcome measures in the education system, *International Journal of Art Therapy*, 24:2, 68-75
- Devlin, A. S., Anderson, A., Hession-Kunz, S., Kelly, M., Noble, L., & Zou, A. (2019). Magnitude Matters: Art Image Size and Waiting Time Impact Perceived Quality of Care. *HERD: Health Environments Research & Design Journal*.
- DuBose, J., MacAllister, L., Hadi, K., & Sakallaris, B. (2018). Exploring the Concept of Healing Spaces. *HERD: Health Environments Research & Design Journal*, 11(1), 43–56.

Farley, K. M. J., & Veitch, J. A. (2001). A Room with a View: A Review of the Effects of Windows on Work and Well-Being.

Gazzaniga, M. S. (2008). *Human: The Science behind What Makes Us Unique*, New York: Harper Collins.

Hettiarachchi, A. A. and De Silva, N. (2012). Colour associated emotional and behavioural responses: A study on the associations emerged via imagination. *Built-Environment Sri Lanka*, 11(1), pp.21–27.

Karnik, M., Printz, B., & Finkel, J. (2014). A Hospital's Contemporary Art Collection: Effects on Patient Mood, Stress, Comfort, and Expectations. *HERD: Health Environments Research & Design Journal*, 7(3), 60–77.

Korpela, K. M. (1992). Adolescents' favourite places and environmental self-regulation, *Journal of Environmental Psychology*, 12(3), 249-258

Kroemer, K. H. E. (2017). Light and moderate work, *Fitting the Human: Introduction to Ergonomics / Human Factors Engineering, Seventh Edition*. CRC Press

Kwallek, N. (1996). Office wall color: An assessment of spaciousness and preference, *Perceptual & Motor Skills*, 83(1), 49–50.

Lankston, L., Cusack, P., Fremantle, C., & Isles, C. (2010). Visual art in hospitals: case studies and review of the evidence. *Journal of the Royal Society of Medicine*, 103(12), 490–499.

Matsuzawa, T. (2011). *Sōzō suru Chika-ra [The power of imagination]*, Tokyo: Iwanami Shoten.

Mehta, R., & Zhu, R. J. (2009). Blue or Red? Exploring the Effect of Color on Cognitive Task Performances. *Science (New York, N.Y.)*. 323. 1226-9.

Moon, B. L. (1998). *The Dynamics of Art as Therapy with Adolescents*, Springfield, IL: Charles C. Thomas

Nanda, U., Eisen, S. L., & Baladandayuthapani, V. (2008). Undertaking an Art Survey to Compare Patient Versus Student Art Preferences. *Environment and Behavior*, 40(2), 269–301.

Nielsen, S. L., Fich, L. B., Roessler, K. K., & Mullins, M. F. (2017). How do patients actually experience and use art in hospitals? The significance of interaction: a user-oriented experimental case study. *International journal of qualitative studies on health and well-being*, 12(1), 1267343.

Park, J. G. (2009). Color Perception in Pediatric Patient Room Design: Healthy Children vs. Pediatric Patients. *HERD: Health Environments Research & Design Journal*, 2(3), 6–28.

Pasanen, T. P., Neuvonen, M., & Korpela, K. M. (2018). The Psychology of Recent Nature Visits: (How) Are Motives and Attentional Focus Related to Post-Visit Restorative Experiences, Creativity, and Emotional Well-Being? *Environment and Behavior*, 50(8), 913–944.

Pearson, M., Gaines, K., Pati, D., Colwell, M., Motheral, L., & Adams, N. G. (2019). The Physiological Impact of Window Murals on Pediatric Patients. *HERD: Health Environments Research & Design Journal*, 12(2), 116–129.

Souza, E. (2020). "How Colors Change the Perception of Interior Spaces" [Como as cores alteram a percepção dos espaços interiores], ArchDaily. Retrieved from <https://www.archdaily.com/935067/how-colors-change-the-perception-of-interior-spaces/> (Accessed on: 20 May 2020)

Sternberg, E. M. (2009). *Healing spaces: The science of place and well-being*, Cambridge, Mass: Belknap Press of Harvard University Press.

Ulrich, (1984). View Through a Window May Influence Recovery from Surgery, *Science*, 224(4647), 420-421.

Ulrich, R. S. (1991). Effects of interior design on well-ness: Theory and recent scientific research. *Journal of Health Care Interior Design*, 3, 97–109.

Wang, H. (2017). *Yìshù zhìliáo: Lǐlùn yǔ shíwù* [Art therapy: theory and practice], Taipei: Hungyeh.