

Implementing An Innovative Design Charrette: Creating Healing Environments for Clinicians and Patients' Well-being

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ABSTRACT

Clinicians, staff, patients, and visitors use the healthcare environment, and a deeper understanding of spatial elements that promote their well-being is necessary. However, clinical and academic nursing does not naturally fit within the field of architectural design and planning. A design charrette, an interactive and innovative approach for faculty, staff, and clinicians, offers participants a chance to be creative in merging evidence-based practice with evidence-based design principles to aid in well-being. This educational brief outlines the process and outcomes of spaces that promote well-being and restoration. The design example presented is a restorative space in a clinical unit. We describe the methods of this teaching experience and highlight the application of a design charrette for a clinical unit.

Submitted 22 May 2024; accepted 3 June 2024

Keywords: healing, restorative space, design charrette, healthcare built environment

BACKGROUND

Any space should promote well-being. This notion does not only apply to healthcare spaces but to commercial, residential, and academic spaces. Space, the environment in which we exist, affects the well-being of all living creatures. A well-designed healing environment has demonstrated decreases in stress and improved health outcomes in people (Gaminiesfahani et al., 2020; Hesselink et al., 2020; Lin & Juan, 2024; Simonsen et al., 2022; Sternberg et al., 2020; Tronstad et al., 2021). For example, resolving the negative effects of noise and light features in pediatric settings has been shown to improve patients' development and sleep (Eidhammer et al., 2024; Hendy et al., 2024).



To teach the features and design parameters of a space that supports well-being, we delivered a faculty forum called a *design charrette* to bring together faculty and staff of a midwestern College of Nursing. Each person in the forum represented a stakeholder who used space to improve well-being. The stakeholders and their roles included clinical, global and IT faculty, facility managers, space allocation experts, direct care nurse managers and providers.

This educational brief demonstrates a unique process for academic faculty and staff to create space for well-being within a clinical unit. The model can be applied in academic settings as a teaching mechanism.

The goal of the design charrette was to engage stakeholders in the design process, putting their unique perspective and experience to work to enrich the designed environment. The design charrette used the *restorative space* as an example as it is a small, but well-known space to healthcare clinicians. Our intention was to use a well-known space to provide a simple but meaningful activity. Exemplifying this small but simple space gave participants an opportunity to learn how the design process works. By participating in the design charrette, stakeholders can become more informed and competent, which can facilitate active engagement with a design team of architects, interior designers, and others involved in the planning of clinical and academic spaces.

Florence Nightingale's *Notes on Nursing* (Nightingale, 1860) and *Notes on Hospitals* (McDonald, 2020; Nightingale, 1863) provide clinicians with the rationale for restorative spaces in the clinical work environment. Nightingale's notes promote using one's voice in the design of those spaces.

In contemporary times, the importance of nurses being involved with design, as put forward by Nightingale, is directly evidenced in the American Nurses Credentialing Center (ANCC) Magnet Recognition® which requires nurses to serve on a design team (Start et al., 2024; Stichler, 2015). Therefore, this design charrette also adds to participants' understanding of the ANCC Magnet application criteria. Learning the design charrette process affords participants the skills necessary for ANCC Magnet criteria, such as workflow design or redesign, and actively participating in the design of a building (<https://www.nursingworld.org/organizational-programs/magnet/about-magnet>).

This design charrette translates nursing actions from the clinical to the academic domain. This andragogy narrows the gap between the academic and clinical settings in relation to healthcare design and its intentional support of well-being.

AIMS (TEACHING STRATEGY)

Four aims guided the teaching strategy:

1. Explain an innovative way to solve problems: design charrette.
2. Analyze the role of restorative space in caregiver well-being.
3. Apply architectural design features and elements to create a space and environment for well-being.
4. Identify nurses and other health care professionals' role in bringing their expertise to a design charrette.

AIM #1 Explain an Innovative Way to Solve Problems: Design Charrette

The design charrette, originated in the Paris school of Beaux Artes, was a process that was intended to build the design skills and fortitude of their students. A design "problem" would be given at the end of the day, and a solution was due the next morning. Students would often work through the night to create their solution to the problem. In the morning, the professors sent a charrette cart (as a joke since this was a medieval cart used for collecting and removing the dead during the black plague) to place and collect the drawings from the students. This tradition has

continued in design schools to this day and is used in professional situations to quickly identify issues, goals, and vision with creating solutions to these problems while building team consensus (Shepley et al., 2022). A truly valuable process!

Our team translated this process with an innovative stakeholder group. Faculty, staff, and clinical leaders learned how to create an environment of well-being in an interactive guided approach. We use a simple healthcare unit setting; however, our goal was more complex: faculty would integrate this experience into their lectures as a criterion within evidence-based care. This broadens both faculty and students' understanding of the role the physical environment plays as they participate in clinical experiences.

In his seminal paper *View Through a Window May Influence Recovery from Surgery*, Roger Ulrich (1984) demonstrated how natural light and a view of nature improved healing and decreased patients' length of stay and medication use. Features of a healing environment include the elements of location (where you will place the restorative space on the unit); access to natural light and views; being able to control your environment (temperature, light, sounds, etc.); ability for privacy and socialization; ability to personalize your environment; and pleasant distractions (art, music, entertainment, views, etc.).

AIM #2 Analyze the Role of Restorative Space in Caregiver Well-Being

Several considerations in building design have been identified to promote well-being, such as indoor air quality (known as indoor environmental quality); comfort from thermal, visual, and acoustic systems; movement and ergonomics; nutrition access (diet and safe water); and general social and psychological well-being (McArthur & Powell, 2020). Measuring the effect of the built environment on well-being is often related to satisfaction or comfort, variables that are quite subjective (Hanc et al., 2018).

The opportunity for restorative spaces that promote well-being exists in all building types. The space can be new, repurposed, or renovated. The goal of restorative space is to provide a feeling of being away, mentally if not physically, and create a feeling of fascination without effort. This space can improve how users manage a shift, increase cognitive abilities, provide an opportunity to reflect on the work, and restore the users ability to continue their job that day (Okland & Nejati, 2021; Rhee et al., 2023).

Restorative spaces can improve well-being through the 5 "R's": (1) rest and restoration, (2) recharge, (3) rejuvenation, (4) recreation, and (5) reflection. Moreover, a restorative space can positively affect a person's mood and improve performance and engagement. Several key features of a restorative space include engaging and calming without effort; safety and relaxation; and choices of activity, time, and engagement (Ratcliffe, 2021).

Applying features of a restorative space to the nursing metaparadigm would look like this: *Client*: A sense of safety, calm, clear communication, clutter to a minimum; *Nurse*: a separate space adjacent to, or off the clinical unit to nourish the body, mind, and soul; *Health*: restorative space for patients and nurses brings enhanced physical and mental health and decreases cognitive load which can impact safety and quality of care provided; and *Environment*: an area of calm, view of nature, support nutrition and mindful practice: a timeout place.

Why does a restorative space matter? Well-being for nurses is at an all-time low, with increased levels of burnout, stress, anxiety, and intent to leave the profession greater than before the pandemic (Melnyk et al., 2022). Taking a break decreases poor focus, opportunity for errors, and poor nurse well-being (Bell et al., 2023; Trinkoff et al., 2021). Further, the Facility Guideline Institute (2022), which sets hospital building standards, requires a breakroom (Gregory et al., 2023; Jin et al., 2023).

The positive effect of restoration can be found in the exterior of a building as well. Cordoza et al. (2018) and Besa et al. (2023) demonstrated that by providing access to well-designed outdoor spaces, feelings of depersonalization, burnout, and emotional exhaustion could be reduced. Valipoor et al. (2023) reported an enhanced sense of worth and feeling of being valued in these spaces.

A design charrette can also include experiential design elements that engage the visual, auditory, olfactory, and tactile senses. Building designs are increasingly cognizant of these sensory perceptions. Generally, following these principles creates an opportunity for restoration free from sensory overload. When designing a restorative space, stakeholders should ensure that the design supports all users to make them feel welcome. This may prevent the space from being disruptive or uncomfortable for some users (Spence, 2020).

AIM #3 Apply Architectural Design Features and Elements to Create a Space and Environment for Well-Being

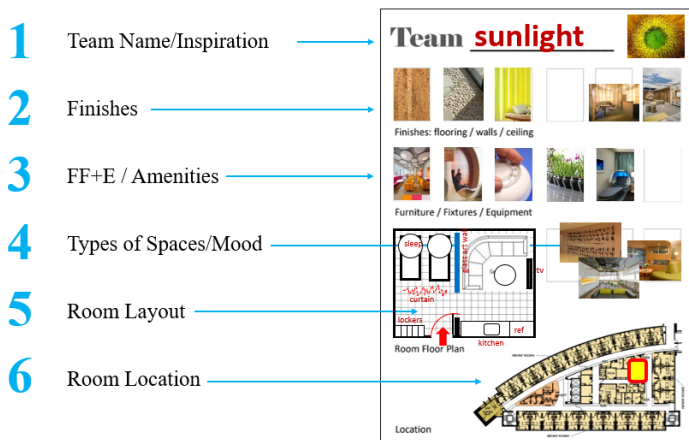
A design problem is assigned to create a restorative space (break room) where teams appraise and select architectural features from a package of options that embodies their vision and goals for the space. We then ask the teams to show their created space on a custom vision board by displaying image cards, drawings, and other items given to each participating team.

Each team collectively agrees to the space’s vision (what does it feel like?), the function (how is it to be used?), the elements that support this (furniture, equipment, walls, windows, etc.), and the interior finishes (walls, floors, and ceilings).

Once the breakout teams are organized, they collectively define and select the materials provided: Vision cards are distributed with the following categories: ventilation, thermal and acoustic comfort, daylight (windows) and lighting; biophilic design features and plants, color, surfaces; furniture and amenities; ergonomics; art, music, and wayfinding. We briefly describe each feature.

Each team assembles their vision cards on the vision board (Figure 1), which includes the team name/inspiration, finishes, furniture, fixtures, and equipment (FF+E), type of spaces/mood, room layout, and room location.

Figure 1
Sample Vision Board



AIM #4 Identify Nurses and Other Health Care Professionals’ Role in Bringing Their Expertise to a Design Charrette

Many stakeholders participate in a design charrette, including administration, nursing, ancillary professionals, patients, and family members, all of whom add to the design perspectives when developing a restorative space. Those who participate in the design charrette use the space. Each design charrette group member identifies the way they would use the space. This then leads to a consensus for the space’s theme.

IMPLEMENTATION OF THE DESIGN CHARRETTE

The development of the team’s vision boards included a team process and an understanding of architectural features and how those features promote well-being in any space.

By participating, they connected innovation and well-being with the outcomes that also support restoration for clinical staff. With this underlying knowledge, faculty can transfer the core principles to the academic learning environment for students and other faculty (Mohammed et al., 2023; Packer, 2021; Ricciardi & Buratti, 2018).

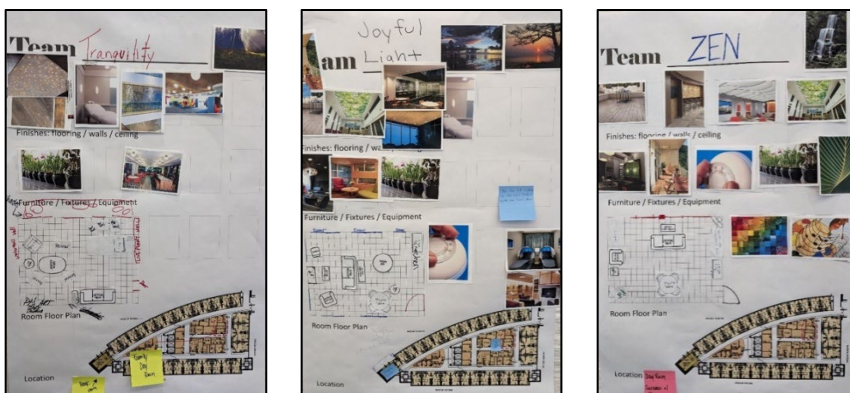
When assessing the productivity of collaborative work, the spatial layout and furniture in the space had a positive effect (Hong et al., 2021). In one study of higher education green buildings (i.e., a building designed for greater efficiency), the green building rated high for layout, image, and internal spaces, but low for ventilation, noise, lighting, and other components of indoor environmental quality (Khoshbakht et al., 2018). While it is important to create wellness programs and elicit engagement within the workspace (Keller et al., 2022), the building must support these activities with movement and travel corridors and space, kitchens to improve nutritional well-being, and group spaces for teamwork and learning.

OUTCOMES OF OUR DESIGN CHARRETTE

This face-to-face design charrette was approved for 2.2 continuing education units from the ANCC through the College of Nursing. The three teams: (1) Tranquility ($n = 3$), (2) Joyful Light ($n = 4$), and (3) Zen ($n = 4$) presented their vision boards to the whole group (Figure 2).

Figure 2

Faculty Forum Design Charrette Vision Boards



A post-design charrette evaluation, developed by the design charrette planning team, was administered via a Qualtrics survey. A summary of the survey outcomes is listed in Table 1.

Table 1
Post Design Charrette Evaluation

Question					
What is your area of expertise?	RN/APRN	Physician	Pharmacist	Other	
N=10	6	0	0	4	
My overall rating of the speaker(s):	Excellent	Good	Fair	Poor	
N=7	6	1	0	0	
comments	Amazing information on a different way to impact healthcare Loved this!				
When we follow up with you in 6 months, what will have been the impact of this activity on your practice					
comments	<ol style="list-style-type: none"> Hopefully have an impact on our units and new ways to add to wellness through design. Thinking of the charrette Gave me ideas 💡 of how to think about space. Help with designing our new lab More knowledge about design; Open-minded about changing spaces Keeping the design in mind 				
Information will enhance my professional expertise	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
N=7	5	1	1	0	0
Information is applicable to my work	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
N=7	4	3	0	0	0
I plan to change my practice following this activity	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
N=9	3	3	3	0	0
What was your overall impression of this program? What went well? What could be improved?					
comments	<ol style="list-style-type: none"> Really enjoyed looking at this aspect of improving the care environment to improve care. Great Fun! You should wait to hang out the inspiration cards until you are done giving instructions. :) Nice and different 				
General Comments					
comments	<ol style="list-style-type: none"> Thank you! None 				
As a result of this presentation, I am able to define restorative space and explain its effect on caregiver well-being.	Yes	No	unsure		
N=	7	0	0		

The outcomes of this educational brief can be further described through a micro (i.e., immediate outcomes of this design charrette), meso (i.e., intermediate outcomes), and macro (i.e., long-term outcomes) framework lens.

Micro-Level

The micro-level outcomes are demonstrated in the completed vision boards as shown above. Participants now have the cognitive awareness of the importance of space design to overall well-being, and they may intentionally or unintentionally incorporate these experiences into their current or future practice. The appreciation of a restorative space toward well-being may also support greater encouragement for students, faculty, and clinical staff to take breaks that may lessen burnout.

Meso-Level

At the meso-level, all participants now know that design and participation on any design team are criteria of Magnet status in healthcare facilities. Additionally, students at every level of their education can be reminded by faculty that knowledge of healthcare design and participation on design teams is a valuable activity for career ladder advancement. Importantly, students and faculty, clinical practitioners and leaders, and others who interact with the space can, with greater confidence, advocate for users of the healthcare built environment.

Relationships between multidisciplinary programs, classes, and capstone projects in such topics as nursing and architecture, public health and urban planning, wellness, and landscape design support the connection between evidence-based practice and evidence-based design. Expanding on this forum by creating and updating course syllabi with special focus on the environment enriches the student's experience for the real world.

Taking the time to engage in the healing environment through a design charrette allows clinicians and faculty to improve the health and well-being of all occupants of the space through recognition and adaptation of the healing elements and design of the space. It can be a useful guide in academic curricula on well-being in the academic setting (Gawlik et al., 2024) or when observing student behavior in the built environment while promoting success.

Macro-Level

In order to improve well-being in the built environment, the building industry has created design certifications such as LEED (<https://www.usgbc.org>) and WELL (<https://www.wellcertified.com>). Understanding how a building is created for sustainability and air quality (LEED) to ensuring occupant health (WELL) is important for faculty students, and clinical staff. They can learn the process and have input on the role their space has in improving well-being.

Taking the time to engage in the healing environment through a design charrette allows clinicians and faculty to improve the health and well-being of all occupants of the space through recognition and adaptation of the healing elements and design of the space.

Overall, this design charrette has expansive impacts on micro, meso, and macro-level outcomes. It demonstrates immediate and future applications for nursing education, practice, policy, and research.

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Author's Note

This author declared no potential conflicts of interest concerning this article's research, authorship, and/or publication.