LESS ANXIETY, MORE ART:
EFFECT OF VISUAL ART ON HEALTH AND WELL-BEING

UPALI NANDA, PHD,
ASSOC. AIA, EDAC
VICE PRESIDENT, DIRECTOR
OF RESEARCH
AMERICAN ART RESOURCES
WHY ART

Integral Part of Architecture & Design

Not limited to “framed” pictures on the wall.
WHY ART

Point of focus in a built environment.

Boundaries between Art and Design are becoming blurred.
WHAT IS “ART”

Not my question to answer.......
WHY EVIDENCE

POWER TO HEAL

POWER TO HARM

• VISUAL IMAGES HAVE A DIRECT IMPACT ON HEALTH

• ART CAN HAVE AN IMPACT ON THE OVERALL HEALTHCARE EXPERIENCE
NATURE VIEW: RECOVERY

Window in Patient Room:

Nature View Resulted In:

Shorter Time in Hospital
Fewer Doses of Analgesics
Fewer Negative Notes

(Ulrich, 1984)
NATURE VS. URBAN

Nature images resulted in
- Faster Recuperation
- Less Fear
- More positive emotions

(Ulrich, 1992)

Images not from original study
Patients on gurneys viewing ceiling mounted scenes of nature and/or water had systolic blood pressure levels 10 to 15 points lower than patients exposed to either aesthetically pleasing “arousing” pictures or a control condition of no picture.

(Coss, 1991)
Patients exposed to landscape image with water, trees and high depth of field experienced:

- less anxiety and
- less intense pain

The abstract image with rectilinear forms worsened outcomes as compared to control conditions.

(Ulrich et al., 1993)
HEALING IMPACT

PAIN
STRESS
ANXIETY
RECOVERY

(For overview of literature see Hathorn and Nanda, 2008)
“if there is not an understanding of the underlying mechanism to explain why the results happened, then no matter how robust the findings of the research, they could be dismissed”

(Cohen, 2009)
THEORETICAL FOUNDATION

- Evolutionary Theory/Biophilia
- Prospect Refuge Theory
- Attention Restoration Theory
- Emotional Congruence Theory
- Visual Processing Theory
GUIDELINES FOR HEALTHCARE ART

BASED ON EVOLUTIONARY THEORY
EMOTIONAL CONGRUENCE THEORY

• Waterscapes:
  Calm or Non-turbulent Water

• Landscapes:
  – Visual Depth or open foreground
  – Trees with broad canopy
  – Savannah Landscapes
  – Verdant Vegetation
  – Positive cultural artifacts (e.g. barns and older houses)

• Flowers
  – Healthy and Fresh
  – Familiar
  – Gardens with open foreground

• Figurative
  – Emotionally positive faces
  – Diverse
  – Leisurely

(Ulrich et al. 2003)
DANGEROUS LEAP OF FAITH

Nature: Good

Abstract: Bad

Culture?
Context: Age/ Space?

Composition?
Color?

Scale?
Location?
Line of Sight?
FIRST....
ASK!

• WHAT KIND OF ART DO PATIENTS PREFER?
  – ADULT INPATIENTS
  – PEDIATRIC INPATIENTS
ART IN PATIENT ROOMS

ACUTE CARE INPATIENTS
PATIENT BEDSIDE

ST. LUKES HOSPITAL, HOUSTON
ART IN PATIENT ROOMS

Factoids:
Men and kittens/flowers
Animal images subjectively popular
Flower images popular among volunteers
Volunteer choice occasionally directs patient choice

• Foster control
• Promote social support
PATIENT PREFERENCES FOR POPULAR ART VERSUS EVIDENCE-BASED ART

Tracking best-selling art online

Work of great masters-
Classics (abstract-representational)
SURVEY IMAGES

PATIENT PREFERENCES FOR POPULAR ART VERSUS EVIDENCE-BASED ART

Tracking best-selling art online

Contemporary Abstract
METROCON 2010

SURVEY IMAGES

PATIENT PREFERENCES FOR POPULAR ART VERSUS EVIDENCE-BASED ART

Tracking best-selling art online

Stylized and Realistic Nature
METROCON 2010

SURVEY IMAGES

Pair 1

Pair 2

Pair 3

Pair 4

Pair 5

Pair 6

Pair 7

© AMERICANARTRESOURCES
METROCON 2010

STAFF VS. PATIENT PERCEPTION

TOP RANKING IMAGE WITH STAFF, ONE OF THE LOWEST RANKED WITH PATIENTS
METROCON 2010

STAFF VS. PATIENT PERCEPTION

TOP RANKING IMAGE WITH STAFF, ONE OF THE LOWEST RANKED WITH PATIENTS

Staff Comments:
“light,” “airy,” dreamy,” “like being on vacation,”

Patient Comments:
Desperate feeling, “fear of big tidal wave,” It stresses me out, I don’t know why,” and “A sad picture ... looking for husband to return
IMAGE RANKING

EMOTIONAL RATING
“How does this image make you feel?”

SELECTION RATING
“Would you put this picture in your room?”

Realistic-Nature

Stylistic-Nature

Abstract-Representational

Abstract-Non-Representational

© AMERICANARTRESOURCES
HOME VS. HOSPITAL

THE UNIQUE PERCEPTUAL CONTEXT OF BEING IN A HOSPITAL

• Many patients made a distinction between art they would choose for their home, and artwork they would put in their patient rooms.
GENDER EFFECT
ADULT INPATIENTS ART PREFERENCES

- Patients prefer realistic nature content over abstract or stylized content
  - even when the latter is high quality (classics) or popular (best-selling)

- Patients distinguish between images they would select for their home versus hospital

- Patients selection is highly correlated to their emotional rating
### PATIENTS VS. STUDENTS

<table>
<thead>
<tr>
<th>STUDENT</th>
<th>PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract art with representative or non-representative forms</td>
<td>Realistic nature art</td>
</tr>
<tr>
<td>Stylized nature art</td>
<td>Stylized and realistic figurative art (in natural settings)</td>
</tr>
</tbody>
</table>

### STUDENT VS. PATIENT EMOTION VS. SELECTION

- **PATIENTS RATING HIGHLY CORRELATED BETWEEN EMOTION AND SELECTION**
- **NON-DESIGN STUDENTS: MEDIUM CORRELATION**
- **DESIGN STUDENTS: LOW CORRELATION, INVERSE CORRELATION**
<table>
<thead>
<tr>
<th>PERCEPTUAL CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• IN NON-HOSPITAL SETTINGS AESTHETICS MAY BE THE KEY DRIVER FOR SELECTION</td>
</tr>
<tr>
<td>• IN HOSPITAL SETTINGS, FOR VULNERABLE PATIENTS, EMOTIONS DRIVE SELECTION</td>
</tr>
</tbody>
</table>

© AMERICANARTRESOURCES
Perceptual Context

“I Think, I Reason”
Aesthetic Judgment

“I Feel, I React”
Fight or Flight
GOING DEEPER...

NEUROSCIENCE STUDIES USING VISUAL IMAGES AS STIMULI

(Neuroesthetics and Healthcare Design: Nanda et al., 2009)

Bar et al., 2008
CONNECTING THE DOTS....

WHY ABSTRACT ART WITH RECTILINEAR FORMS WORSENED HEALTH OUTCOMES

• CONTOUR
  – Curved contours preferred
  – Sharp contours activate Amygdala (fear center) to a greater degree
    » Bar et al., 2008
KEEP ASKING

• WHAT KIND OF ART DO PATIENTS PREFER?
  – ADULT INPATIENTS
  – PEDIATRIC INPATIENTS
METROCON 2010

PEDIATRIC ART PREFERENCES

CHILDREN’S MEMORIAL HERMANN HOSPITAL HOUSTON

67 PATIENTS b/w 5-17
TOP RANKING IMAGES ACROSS DEVELOPMENTAL STAGES

Pre-operational Stage (5-6 yrs)

Concrete Operational Stage (7-10 yrs)

Formal Operational Stage (11-17 yrs)
Something to do - puzzle
Don’t know what it is
Doesn’t really connect
**Messy**
Mosaic picture - makes me feel “nonsense”

Tree **looks far away**
Boring
Looks plain
Don’t like house, can’t see

Dead and on the floor
**Plain**
2 legs - looks strange
His expression - not showing anything

Not appealing - looks like work
Looks like old people in church wings
Too **boring**
No excitement
The combination of bright colors, engaging themes and nature content is consistently rated high in pediatric art preferences.

Realistic nature images with bright colors, water element and/or friendly wildlife may be suitable for pediatric populations.

Pediatric preferences vary significantly between the three operational stages.

Child art, typically used in pediatric wards, is more suited for younger children than older children.

Appreciation of comic/iconic images may vary across age-groups and must be chosen accordingly.

(What preferences tell us) 
(Nanda et al., 2009)
BENEFITS

WHERE OPERATIONAL OUTCOMES MEET HEALTH OUTCOMES

• WHAT ARE THE BENEFITS TO THE HEALTHCARE INDUSTRY?
ART AND ANXIETY

PSYCHIATRIC PATIENTS
EAST ALABAMA HOSPITAL

PATIENT LOUNGE

- Patients in the holding unit for observation.
- Average LOS: 2-3 days
- Average No. of Patients: 8-10

• MENTAL HEALTH PATIENTS
METROCON 2010

COMPARABLE NATURE ART

PSYCHIATRIC PATIENTS
EAST ALABAMA HOSPITAL
(collaborator: Dr. Sarajane Eisen)

IMAGE SELECTION

- EVIDENCE-BASED CLASSIC SAVANNAH IMAGE
- ABSTRACT REPRESENTATIONAL
- ABSTRACT NON-REPRESENTATIONAL

(Van Gogh, “Wheatfields”, 1890)
CONTRASTING ABSTRACT ART

PSYCHIATRIC PATIENTS
EAST ALABAMA HOSPITAL
(collaborator: Dr. Sarajane Eisen)

IMAGE SELECTION

- EVIDENCE-BASED CLASSIC SAVANNAH IMAGE
- ABSTRACT REPRESENTATIONAL
- ABSTRACT NON-REPRESENTATIONAL
EFFECT ON PRN MEDICATION

FINDINGS:

IMAGE SELECTION

- PRN REQUESTED SIGNIFICANTLY LOWER FOR NATURE VS. CONTROL
- PRN REQUESTED SIGNIFICANTLY LOWER FOR NATURE VS. ABSTRACT
- WITHOUT OUTLIERS: PRN REQUESTED SIGNIFICANTLY LOWER FOR NATURE VS. ABSTRACT-REPRESENTATIONAL
EFFECT ON PRN MEDICATION

MERE EXPOSURE TO ART CAN EFFECT REQUEST FOR MEDICATION FOR ANXIETY AND AGITATION

COMPELLING BUSINESS CASE

Annual Cost Saving by using Nature Art: $27,526
BENEFITS

WHERE OPERATIONAL OUTCOMES MEET HEALTH OUTCOMES

• WAYFINDING
• BRANDING
• PATIENT PERCEPTION
• STAFF SATISFACTION/RETENTION
EFFECT ON WAYFINDING

ONCOLOGY PATIENTS
M.D. ANDERSON, CANCER CENTER, MAYS CLINIC

POST-OCCUPANCY EVALUATION

210 PATIENTS AND 240 STAFF SURVEYED

SIGNATURE PIECE USED AS WAY-FINDING TOOL

SPECIFIC FRAMED ART PIECES USED BY PATIENTS FOR WAYFINDING

CRITERIA FOR ART SELECTION
PATIENT VULNERABILITY KEY DETERMINANT

© AMERICAN ART RESOURCES
EFFECT ON PATIENT SATISFACTION

- Post Occupancy Evaluation of
  - 210 patients and 240 staff

- 96% of patients rated the artwork as good, or very good.
- 85% of patients thought that artwork made them “feel” better
- 70% of the staff thought the artwork made them “feel” better
- 97% of the staff thought the art was appropriate for the patients
THE RIPPLE EFFECT OF ART

“When I’m having a really tough day, I sit in front of the painting in the lobby and my stress goes away.”

ICU Nurse

“Makes a patient think he’s getting better care.”

Radiology Nurse

“Art and recovery go hand in hand.”

Sleep Lab Nurse

“Makes it easier to come in”

Patient

“The artwork inspires trust in patients.”

Patient
ART CAN EFFECT
HEALTH AND WELLBEING
OF PERSONS
AND
INSTITUTIONS
First Do No Harm

- The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge
  
  » Albert Einstein

Questions?

upali.nanda@americanartresources.com