

# Memory Koi + Fiber Optic Wood: Enhancing Patient Outcomes with Digital Art “Positive Distraction”

**David H. Koch Center for Cancer Care  
Memorial Sloan Kettering Cancer Center  
New York, NY**



Presented By



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*Memorial Sloan-Kettering Cancer Center  
The David H. Koch Center for Cancer Care*



Every aspect designed  
for comfort and care.



Every aspect designed  
for comfort and care.

## Positive Distractions

March 11, 2010 by Debajyoti Paul, PhD, FISA, LEED AP, Images Courtesy of HKS.

f | i | n | t | w | e | e | p | r | e | p | r | i | n | t | s

### Positive distractions in waiting areas could be an advantage for hospitals

A number of studies have shown beneficial impacts of positive distractions in waiting areas for children undergoing medical procedures.

## Evaluating the Effects of Positive Distractions on Imaging Rooms

December 18, 2012 by Xabier Quin, PhD, ESAC, and Arjati Joseph, PhD, EDAC

f | i | n | t | w | e | e | p | r | e | p | r | i | n | t | s



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heart rate), reduction in pain and emotional well-being, and fear.

But while positive distractions have been shown to be effective in reducing pain and anxiety, they also have the potential to increase the length of the procedure.

One example of environments designed to reduce patient anxiety and improve staff efficiency is the use of positive distractions in waiting areas.

In the past several years, the research has shown that positive distractions in waiting areas can have a significant impact on patient and staff satisfaction.

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## Influence of Positive Distractions on Children in Two Clinic Waiting Areas

Debajyoti Paul, PhD, MASA, FISA, LEED®AP, and Ursal Nanda, PhD, Assoc AIA, EDAC

### Abstract

**Objectives:** To evaluate the influence of positive distraction on the behavior and activity of children in two clinic waiting areas. **Background:** Studies show that the quality of waiting environments influences the perception of quality of care and caregivers, that perception of waiting time is a better indicator of patient satisfaction than actual waiting time, and that the waiting environment contributes to the perception of what time waiting involves. **Methods:** Two waiting areas were randomly selected in two clinic waiting areas. The waiting areas were evaluated for waiting time, perceived quality of care, and perceived quality of waiting. **Results:** The waiting areas were evaluated for waiting time, perceived quality of care, and perceived quality of waiting. **Conclusions:** The waiting areas were evaluated for waiting time, perceived quality of care, and perceived quality of waiting.

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## Distraction Strategies Used in Obtaining an MRI in Pediatrics: A Review of the Evidence

■ Vicki Netze-Doyle

**OBJECTIVE:** Many institutions throughout the United States are sedating pediatric patients ranging in age from newborn through young adults for radiologic imaging during invasive and noninvasive procedures. Pediatric sedation strategies can effectively decrease pain and anxiety and increase patient and parent satisfaction. This article is an addition of an evidence-based practice project reviewing three articles regarding distraction strategies used for brain MRI imaging for children between the ages of 5 to 7 years without sedation. **KEYWORDS:** Distraction; Imaging; Sedation; MRI and pediatrics.

### INTRODUCTION

Diagnostic radiological images, such as magnetic resonance imaging (MRI) in pediatric patients can be obtained in a short period of time on a narrow table device. It is very important that the radiologist can interpret the images and give an accurate diagnosis. For an MRI scan, most children cannot lie on the table for an extended period of time on a narrow table device. It is very important that the radiologist can interpret the images and give an accurate diagnosis. For an MRI scan, most children cannot lie on the table for an extended period of time on a narrow table device. It is very important that the radiologist can interpret the images and give an accurate diagnosis.

suggesting that sedation is not required and instead use a variety of distraction strategies. Distraction has been successfully used in many settings with a variety of other procedures including computed tomography scans, intravenous catheters, electroencephalogram, and cardiac catheterization. Distraction strategies may include eye tracking, playing music, hypnosis, or relaxation exercises, and parental presence.

In an effort to evaluate what the literature has to say about obtaining a quality MRI scan in pediatric patients, a literature review was conducted. The review question was asked, "Is it more effective to use distraction strategies in place of sedation in a brain MRI scan for patients 5 to 7 years of age?" The purpose of this review is to evaluate what the literature has to say about obtaining a quality MRI scan in pediatric patients without sedation, when a child 5 to 7 years of age requires a brain MRI scan.

### SEARCH METHOD

Literature searches were performed in the Database of Systematic Reviews of Nursing and Allied Health Literature using the following search terms: MRI and Pediatrics.

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hospital patient rooms (e.g., Malkin, 2008, Chapter 7), limited innovations. Architects repeatedly engage in design and research that systematically evaluates specific outcomes in the built environment. Architects repeatedly engage in design and research that systematically evaluates specific outcomes in the built environment. Architects repeatedly engage in design and research that systematically evaluates specific outcomes in the built environment.

environments can positively or negatively impact stress (Ulrich & Armstrong-Fisher, 2004). operational efficiency (Sobrow & Ulrich, 2004).

Table 2. Summary of Test Results of Behavioral Differences Between Distraction and No-Distraction Conditions at the Dental Clinic

Attention Type	Mean (%) during Distraction Condition	Mean (%) during No-Distraction Condition	(%) Difference	Significance Level
TV monitor	27.73	3.18		
Other artwork	0.26	0.42	23.97	0.000***
Toy	4.24	8.22	-0.00	0.000***
Book	1.97	3.37	3.59	0.007**
Wall	7.1	7.57	-0.2	0.029
Ceiling	2.91	3.22	-0.27	0.028
Floor	2.86	3.83	-3.39	0.023
Door	3.65	3.5	-1.37	0.023
Window	3.97	5.7	-0.15	0.928
Furniture	3.19	3.15	-0.18	0.179
People	36.12	33.64	1.97	0.219
Themselves	6.53	7.30	-15.52	0.000***
Emotional Behavior Scale				
Calm	84.92	84.3	6.62	0.000***
Happy	20.96	19.41	3.30	0.370
Fine movement	16.79	11.35	-4.57	0.001***
Gross movement	2.61	3.18	-3.95	0.007**
Intense movement	0.47	1.75	-1.08	0.163
Activity Level				
Play with toys	6.17	5.73	0.44	0.829
Play with hand-puppets	6.55	10.81	-2.78	0.329
Verbal activity on other play	85.28	81.40	1.82	0.526
Attention Level				
Out of seat	15.64			

Waiting is an integral part of the healthcare experience. Although the exact amount of time patients and families wait in hospitals and clinics varies, there is a general perception that the waiting periods are

## The Role of the Physical Environment in the Hospital of the 21<sup>st</sup> Century: A Once-in-a-Lifetime Opportunity

Roger Ulrich\*, Xiaobo Quan, Center for Health Systems and Design, College of Architecture, Texas A&M University  
 Craig Zimring\*, Anjali Joseph, Ruchi Choudhary, College of Architecture, Georgia Institute of Technology

Investigators have consistently reported that stress-reducing or restorative benefits of simply viewing nature are manifested as a **constellation of positive emotional and physiological changes**. Stressful or negative emotions such as fear or anger diminish while levels of pleasant feelings increase. ... (Ulrich, 1991).

\* Co-principal investigators and corresponding authors: Roger Ulrich, Ph.D.: [roger@uh.edu](mailto:roger@uh.edu); Craig Zimring, Ph.D.: [craig.zimring@ga.instituteoftechnology.edu](mailto:craig.zimring@ga.instituteoftechnology.edu)

Report to The Center for Health Design for the *Designing the 21<sup>st</sup> Century Hospital Project*. This project is funded by the Robert Wood Johnson Foundation.

September 2004

natural daylight in patient rooms has also been found effective in reducing depression, reducing length of stay, and reducing intake of pain medication. Thus, an important consideration while designing hospital layouts may be to optimize exposure to morning light in patient rooms by using an east-facing orientation. This research further implies the possibility that depression might be worsened by architectural designs that block or sharply reduce natural daylight in patient rooms. A hypothetical example would be a hospital having patient-room windows looking out into a roofed atrium with few skylights and little natural daylight. In this example, deprivation of natural daylight could of the atrium from looking

### raction

atures or conditions that have tions can include certain types r or comedy, certain art, and ist, nature. (There is an covered in this review.)

re findings in healthcare populations other than fairly brief encounters with real from stress within three Ulrich, 1999). Investigators e benefits of simply viewing al and physiological changes. sh while levels of pleasant wn that viewing nature hanges, for instance, in blood considerable research has oms, buildings, parking lots) ay worsen stress.

esign especially high rderber, 1986). Mounting sure to nature improves a Swedish hospital found that

heart-surgery patients in ICUs who were assigned a picture with a landscape scene with trees and water reported less anxiety/stress and needed fewer strong doses of pain drugs than a control group assigned no pictures (Ulrich, 1991). Another group of patients assigned an abstract picture, however, had worsened outcomes compared to the control group. Ulrich (1984) found that patients recovering from abdominal surgery recovered faster, had better emotional well-being, and required fewer strong pain medications if they had bedside windows with a nature view (looking out onto trees) than if their windows looked out onto a brick wall.

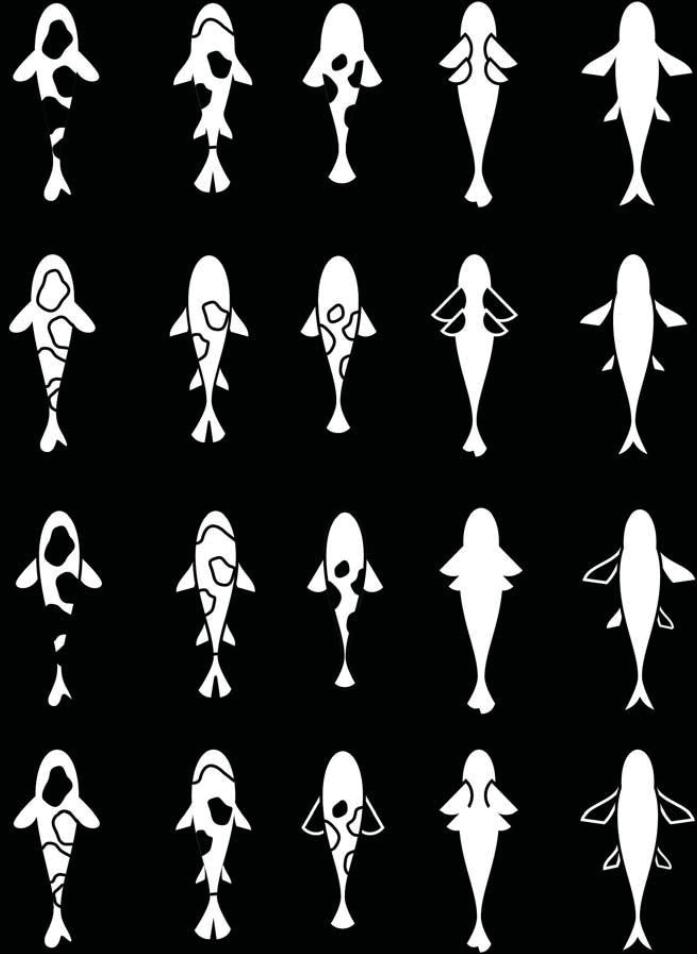


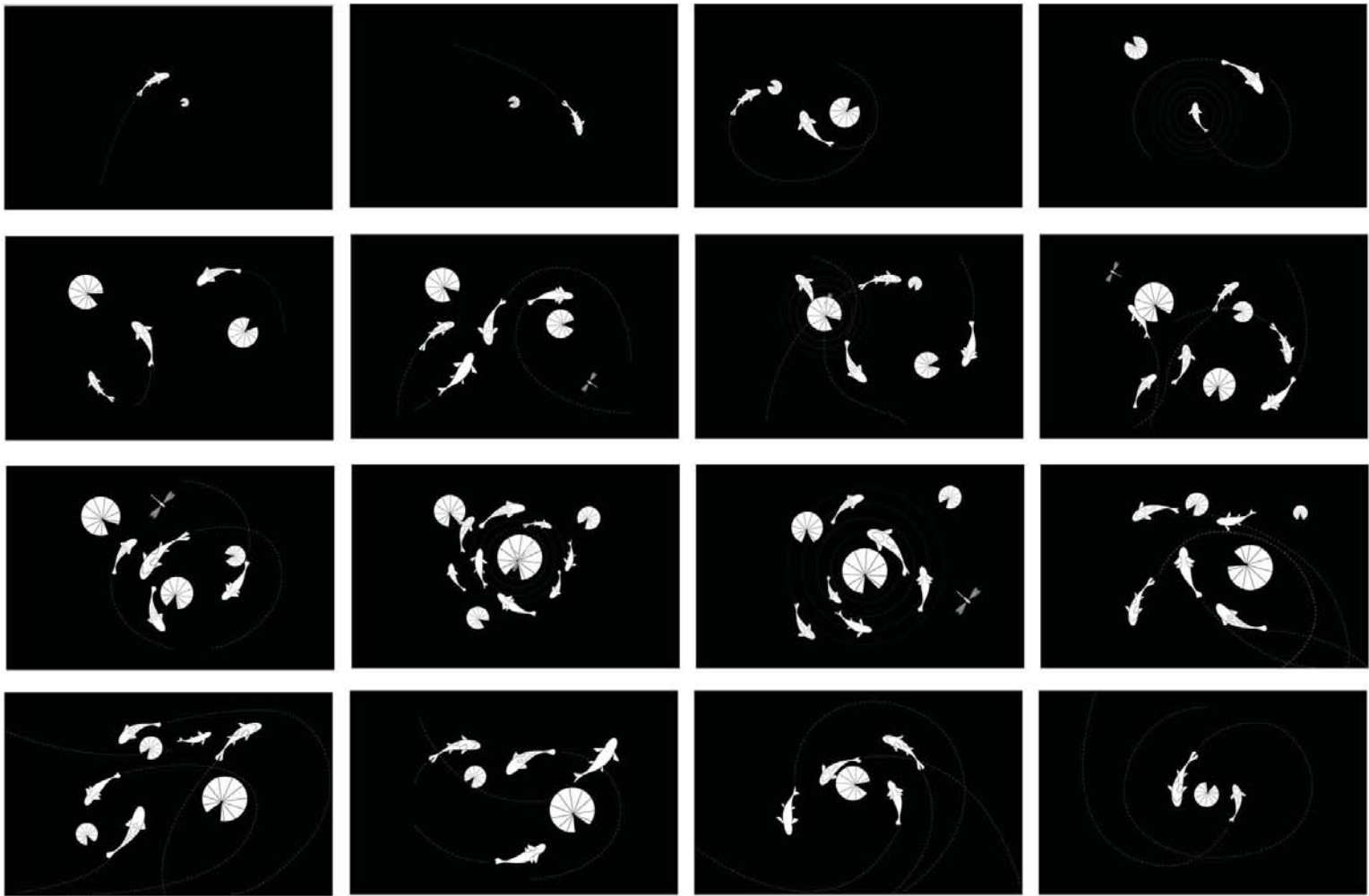
Digital Installation #1:

Dreams in Fiber Optic Wood











Spring  
Cherry Blossom



Summer  
Azalea



Winter  
Japanese White Pine



Fall  
Japanese Red Maple

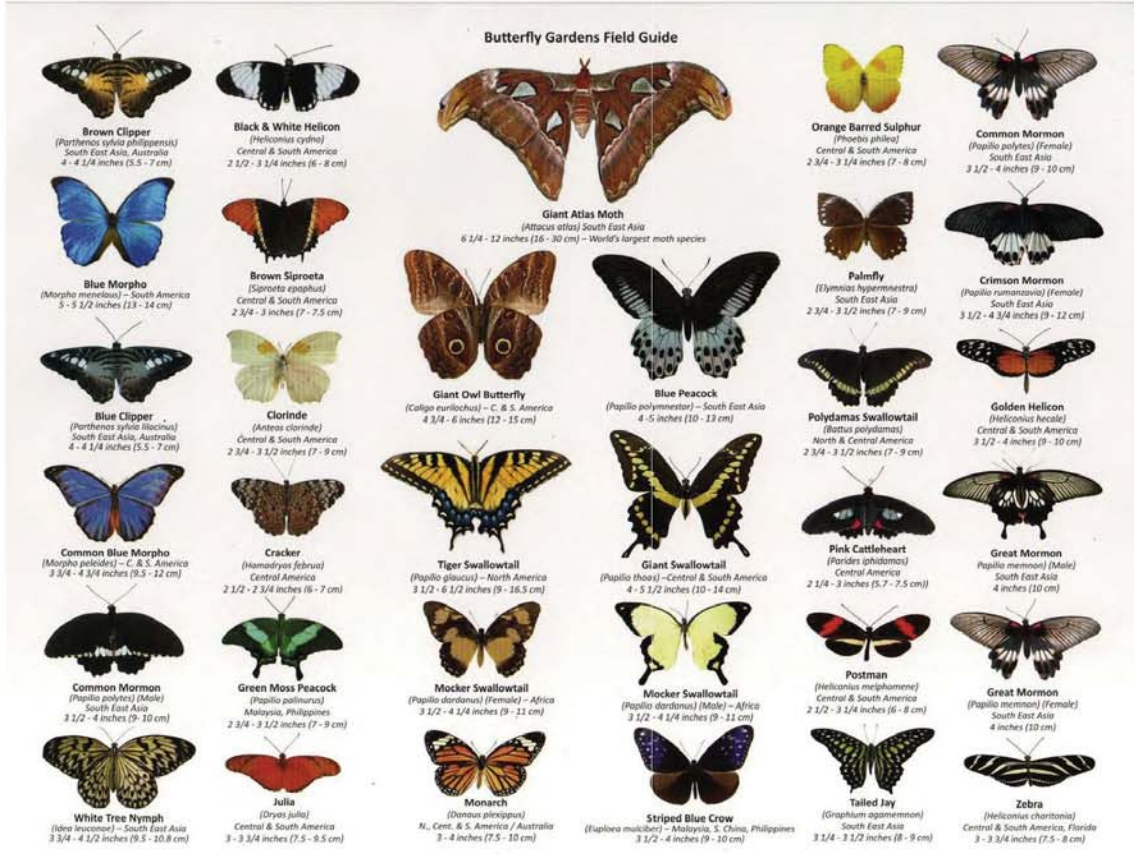












### Selected Wing Shapes



Striped Blue Crow



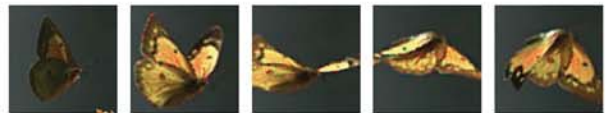
Swallowtail



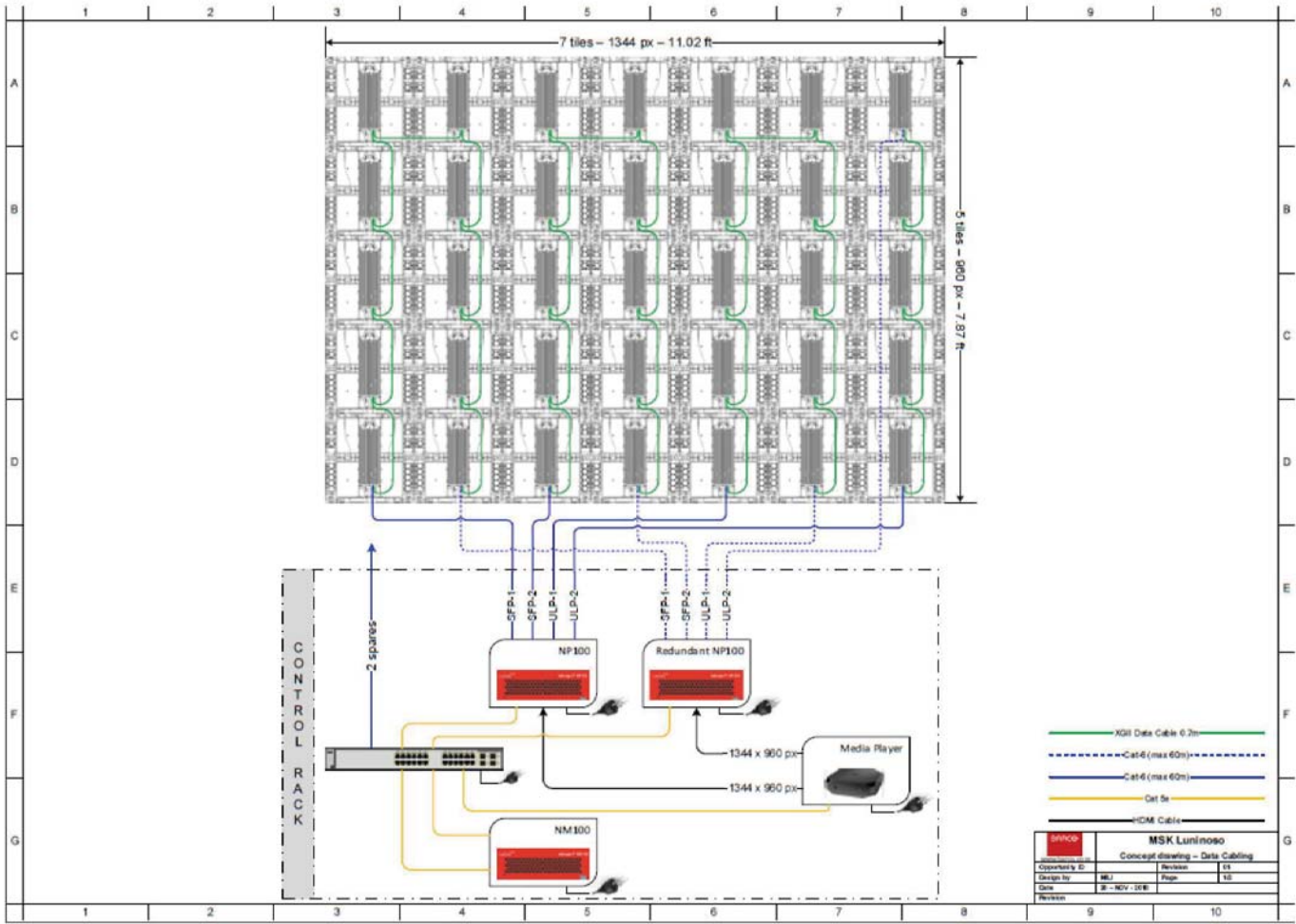
Blue Morpho




Monarch







A man wearing a green shirt and an orange safety vest stands to the left of a large black screen. To the right of the screen is a vertical wooden panel with white text. The text on the panel lists font sizes: 'I'm 24pt', 'I'm 36pt', 'I'm 48pt', 'I'm 60pt', 'I'm 72pt', 'I'm 84pt', and 'I'm 96pt'. The text size increases from top to bottom. In the background, there is a white wall with a black sign that says 'OFF LIMITS' and a black folding chair. A wooden pole is leaning against the wall. On the floor, there are cables and a yellow and black power strip.

I'm 24pt  
I'm 36pt  
I'm 48pt  
I'm 60pt  
I'm 72pt  
I'm 84pt  
I'm 96pt

OFF  
LIMITS

Spring



**EXIT** →

















Digital Installation #2:

Memory Koi





Side View



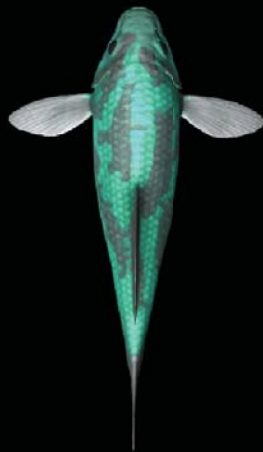




**Big**



**Medium**




**Small**









An interactive digital display showing an underwater scene with various colorful fish, lily pads, and water lilies. The display is framed by a wooden border. Two people are interacting with the screen. One person's hand is pointing at a yellow fish, and another person's hand is pointing at a purple fish. The text on the screen is written in a white, handwritten-style font. The background is a dark blue and purple gradient, suggesting an underwater environment.

Look around for lights and shadows playing with each other.

The voice of water lilies  
flashes with the fall  
low land





*Hi there...*

A top-down view of a pond. In the center, a yellow fish swims towards the bottom. To its right, a large, vibrant orange lotus flower is in full bloom. Several blue fish are scattered around the pond, some swimming and others partially visible. Large green lily pads float on the water's surface. The water has a mottled, textured appearance with various shades of blue, green, and brown. The overall scene is peaceful and serene.

*The voice of waters soothes  
them with its fall*

*-Amy Lowell*



# Informal Impact

- increased patient connections
- inpatients do return to pond over course of treatment
- more laughter, especially from children
- nature sounds enhance environment, patients gravitate to pond when passing time

## What about CoVID-19?

- designed for sensitive patient environment
- does not **require** touch
- install, maintenance, & documentation trickier
- can be extended to use new technology, for example...

4:41



AR-Koi



# Questions?

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# Thank you!

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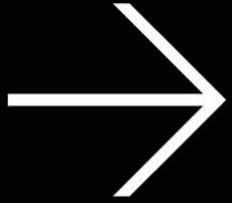
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