

## Unit 3 presentation

“How can we create gaming concepts to develop motivation and encouragement during the recovery process for stroke survivors?”



Fig 1: (Vector stock, n.d.)

Cheyenne von Thun  
(Student ID: 22048373)

# Introduction (identified gap and rationale)

---

## What ? (topic):

Exploring gaming tools and techniques for stroke survivors to encourage motivation during the recovery stages

## Why is it needed ?:

- I identified a gap in the market: gaming tools on a modern-day basis to motivate stroke survivors in their recovery phase (Denslow, E., 2022)
- 17 million people are affected by a stroke every year worldwide according to Safe Stroke EU, in England alone there are 85,000 people (Hurst, L., 2022)
- Which is a striking amount of patients and rationale to develop and upgrade existing tools in order to benefit their life
- Currently there is a lack of contemporary and low budget tools and methods to support stroke patients mentally and physically



Fig 2: (Neuro X, 2022)

# Research question and connection with my observation and gap

- Gap in tools for the recovery stages, such as portable games and every-day objects to support and motivate patients
- Encouragement is required which could be infused with gaming techniques
- Focus of my research question is to work with creatives and recovery professionals who propose methods that can be used as gaming options (on a low-budget basis)
- > Goal: improving sensory reactions and reducing emotional isolation within the demographic
- In support to this alternative non-eurocentric well-being practices are investigated to support mental development as there is a gap to consider the possibility of these well-being techniques.

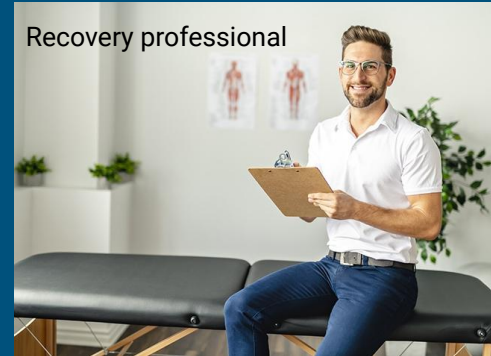


Fig 3: (Health times, 2022)

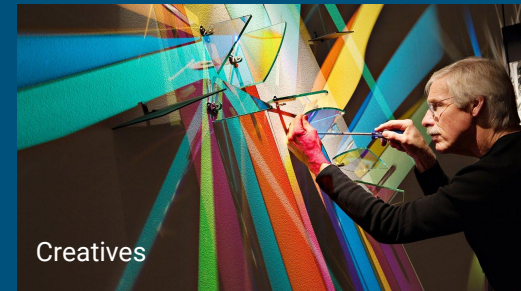


Fig 4: (Knapp, S., n.d.)

# Target audience and stakeholders

---

## Which demographic would benefit from it?

- Patients in their early 20's, and 45-60 yrs lack motivation the most (according to my primary research with a physiotherapist)
- Stakeholders also include people engaging with stroke survivors or who are close to them, i.e. physiotherapists and medical professionals, such as doctors



Fig 5: (Stephenson, B., 2021)

# Overview of research methodology - Double Diamond

Double Diamond Methodology - DISCOVER, DEFINE, DEVELOP, DELIVER (Elmansy, 2023):

My methodology involved the first 2 stages of the Double Diamond:

## DISCOVERING -

1. Primary research - Qualitative data/Quantitative - Interviews, surveys, exhibitions
2. Secondary research -, Podcasts, YouTube, websites, journals
3. Auto - ethnographic - Plant study - using vastu science, sensory ball, tactile art and underwater bike

## DEFINING-

1. Considering gaming solutions based on data collected through AI experimentation

# DISCOVERY (Research)

## Primary research

---

### Qualitative research (Interviews):

Vastu Shastra expert, Feng Shui expert, Physiotherapist, Doctor, Light Artist, Chromo therapist, Individual who has lived with a stroke survivor, Chinese student on colour and mandalas, Elderly patient who has experienced long stay in hospital, Stakeholder- peer from class, CSM, Stroke Survivor

### Quantitative (Survey):

#### Exhibitions:

Yayoi Kusama exhibition, Tate Modern - experience dark/light rooms

London Tottenham Court Road Station - light display show - influence of mandala

## Interview with Vastu and Feng-shui experts: (Balancing Nature in space - air, water, wind, fire)

### Main findings:

#### Vastu, Interview 1:

-Exact placements of items and furniture needs to be taken into consideration in any room, as well as hospital rooms (e.g. no beams above patients' bed)

#### Vastu, Interview 2:

-Relaxing and calming environment for employees and patients in hospitals  
-Quicker recovery

#### Feng-shui interview:

-Moving furniture in correct space  
-Does not require any investments usually  
-Decluttering spaces

->Similar practices from different countries

## Primary research, Qualitative research Overview from Interviews:

Vastu Shastra



Fig 6: (Flipkart, n.d.)

Bagua Map (Feng-shui)

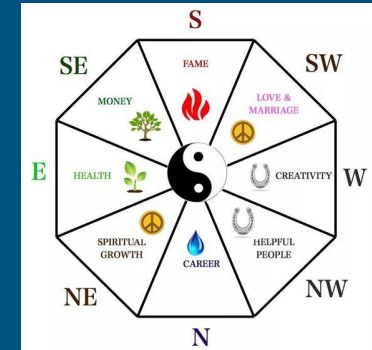


Fig 7: (magicbricks, 2023)

# Interview with Light Artist

## Main findings:

-Was not too interested in healing, but understood the effects of mood with lighting (e.g. visitors found art calming)

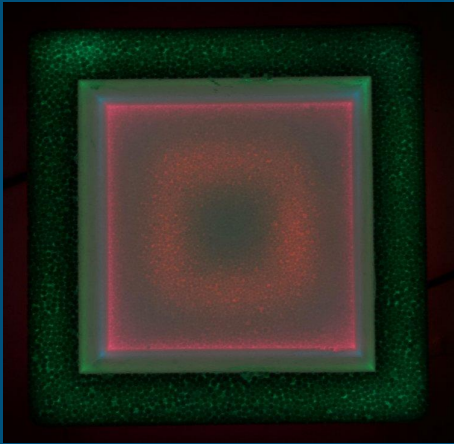


Fig 8: (Mark Boot, n.d.)

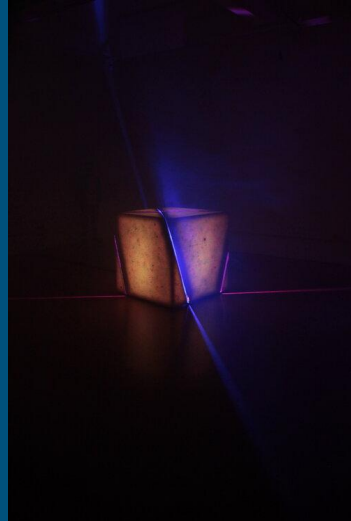


Fig 9: (Mark Boot, n.d.)

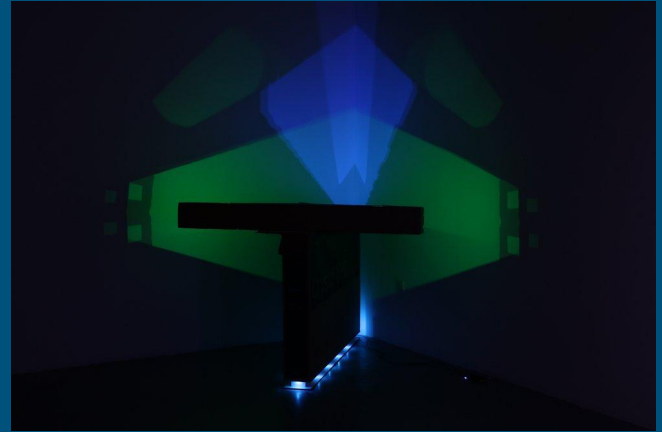


Fig 10: (Mark Boot, n.d.)



# Interview with the chromo therapist

## Main findings:

- Chromo therapist had no connection with stroke patients, however worked as a healthcare professional and was aware of benefits for healing and calm with other patients.
- Benefits include: anti inflammatory effect, regulation of blood pressure, improving self esteem.



Fig 11: (Tripadvisor, n.d.)



Fig 12: (iStock, n.d.)

## Interview with doctor

---

### Main findings:

- Adequate tools and therapies exist (overall)
- Physiotherapy, speech therapy, occupational therapy are the most efficient
- Drug therapy is mostly ineffective in improving the patient's health
- Strokes often come with depression, motivation really depends on the patient
- Financing the patient's therapy is often an issue by the health insurance companies



Fig 13: (SHS Strands for College, n.d.)

# Interview with a stroke survivor

---

## Main findings:

- Card games, memory games and sensory games were most beneficial in their healing process
- Repetition of same game or exercise is a huge win
- Recording/documenting the healing process was crucial



Fig 14: Tran, A. (2022)

# Interview with a physiotherapist

## Main findings:

- More motivation from patients by working with physio and when training in groups
- Difficult and less motivated are the age groups in the early 20's and around 45-60 years
- Patients generally barely train at home by themselves
- If games or programs were connected digitally, the therapist would be able to track the progress
- Digital training groups via teams or zoom could boost motivation
- Classic training tools like skittles, balls and thera bands have lost their contemporary appeal



Fig 15: (My health career, 2022)

## Primary research, Quantitative (Survey):

### Rationale for creating the survey:

- Currently patients suffer from depression, which can often make patient's stay longer at hospitals (Department of Public Health and Primary Care, 2012)
- Long stay has led to a bed crisis in the NHS (Edwards, 2023)
- Based on this, I created a survey on hospital environments as stroke patients begin their recovery process within these spaces <https://www.surveymonkey.co.uk/r/ZND6PZ8>
- Focus of the survey was to highlight alternative well-being practices and whether this could encourage patients.

# Survey responses

## Weaknesses:

- I could not find stroke patients for this survey
- 20% claimed it would not be a good idea to integrate alternative healing spaces into hospitals

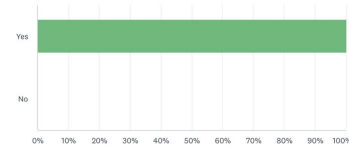
## Strengths:

- Nevertheless, results proved that alternative well-being approaches are considered effective in general for majority of the questions

Q6:

Do you feel staff would be more relaxed and positive if patients were calmer with the effects of alternative healing methods?

Answered: 10 Skipped: 0



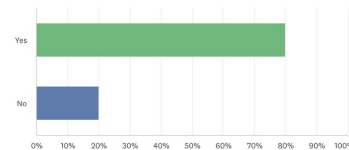
ANSWER CHOICES	RESPONSES
Yes	100.00%
No	0.00%
TOTAL	10

Fig 16: (von Thun, 2023)

Q5:

Do you feel that these methods could be introduced into hospital spaces to have a positive impact on the healing stages?

Answered: 10 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	80.00%
No	20.00%
TOTAL	10

Fig 17: (von Thun, 2023)



## Primary Research, Exhibitions (Tate Modern & Tottenham Court Road)



Fig 18: (von Thun, 2023)



Fig 19: (Instagram, 2022)

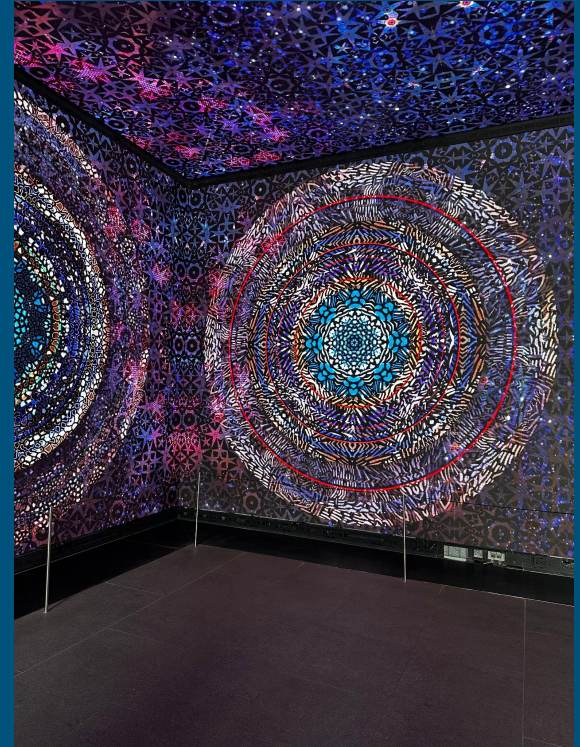


Fig 20: (von Thun, 2023)

# Auto - Ethnographic/ Self-observation

I was struggling to find relevant stakeholders during the holiday period for interviews, hence I decided to also test methods using self-observation

Underwater bike



Fig 21: (von Thun, 2023)

Tactile art



Fig 22: (von Thun, 2023)

Vastu healing plant



Fig 23: (von Thun, 2023)

Sensory training ball

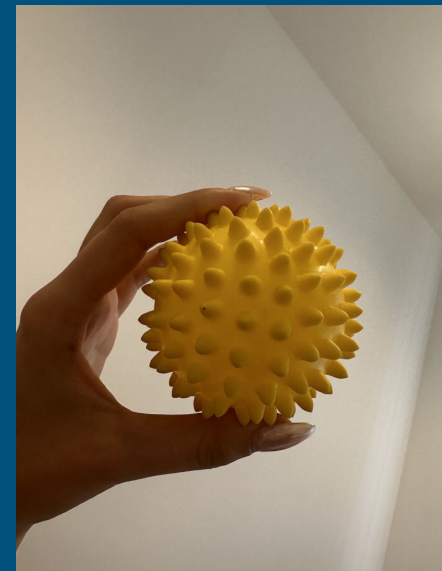


Fig 24: (von Thun, 2023)



# Secondary Research (examples): art for healing, tactile, sensory

Fig 26: (Spotify, n.d.)

Be healthy with Ana podcast (2021)



Fig 25: (Marie, C., n.d.)

Psychoanalyst Carl Jung referenced Mandalas as 'a representation of the unconscious self', (Team, A.T., 2012)

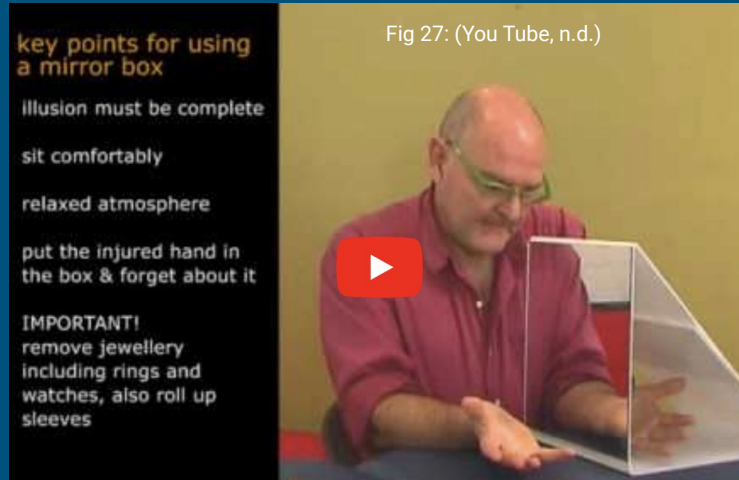


Fig 27: (You Tube, n.d.)

Neuro Orthopaedic Institute NOI (2009)



Fig 28: (Shopping, n.d.)



Fig 29: (Amazon, n.d.)



Fig 30: (Amazon, n.d.)

# What did I learn from my research?

---

## Main findings:

- Stroke survivors require more attention to sensory responses connected to everyday items
- Tactile qualities need to be considered in gaming concepts
- Working in groups (online/offline) to motivate users
- Repetition, recording and timing are essential for tracking progress and need to be integrated into gaming
- Low-budget and accessible items which are portable are required

# DEFINING: Possible solutions for tools/games for stakeholders

AI Generated imagery: Prompt used for AI system: "Stroke patients playing motivating games to improve their exercising abilities"



Fig 31: (OpenAI, Dall.E2, 2023)



Fig 32: (OpenAI, Dall.E2, 2023)

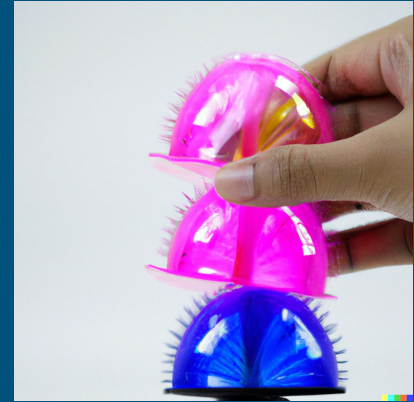


Fig 33: (OpenAI, Dall.E2, 2023)



Fig 34: (OpenAI, Dall.E2, 2023)

Press it as often as you can whenever a light comes on

->Light changes and the more you press a scale goes up, similar to the "strong man game" that can be found on fairs



Fig 35: (OpenAI, Dall.E2, 2023)

Press down every time a light comes on

(can be made in a bigger version and with different materials of buttons)

->Similar to the catch the light game but in a small version

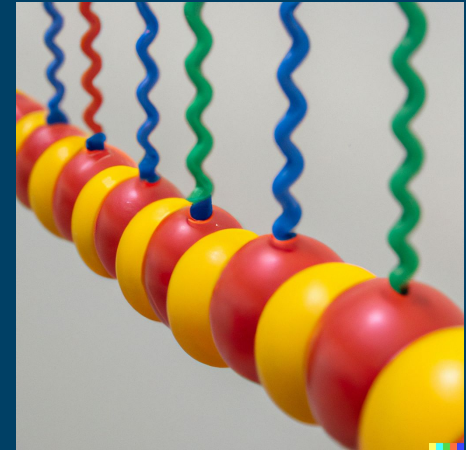


Fig 36: (OpenAI, Dall.E2, 2023)

This could be larger and light up, every time it does the patients has to grab it and pull it down

->Each ball could have a different strength and also different textures to feel

# Surrealism influence for tactile qualities



Fig 37: (Gotthardt, 2018)

Fig 38: (OpenAI, Dall.E2, 2023)



Fig 39: (OpenAI, Dall.E2, 2023)



Fig 40: (OpenAI, Dall.E2, 2023)



Fig 41: (OpenAI, Dall.E2, 2023)



## Existing gaming concepts which can be developed for stroke survivors

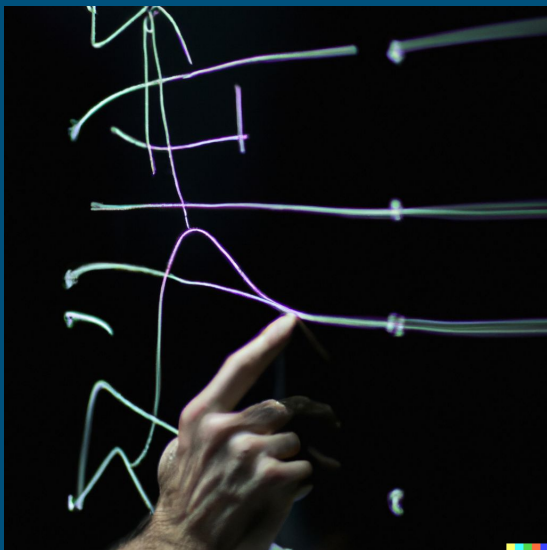


Fig 42: (OpenAI, Dall.E2, 2023)

Inspired by surrealism game "Automatic drawing"  
Stroke survivor is following lines instead



Fig 43: (OpenAI, Dall.E2, 2023)

Developing shape game, that could have  
different surfaces, materials, textures and  
sensory heating



Fig 44: (Weisinger, 2020)

Pac-Man inspired game using joystick (Hand  
and eye-coordination could be trained at the  
same time)

# Interventions (description and rationale)

## Intervention 1: Mandalas for positive well-being

Observing emotional responses to mandalas with music



Fig 45: (Posterlounge, n.d.)



Fig 46: (Adobe Stock, n.d.)



Fig 47: (Freepik, n.d.)

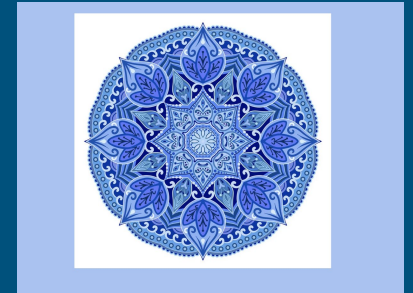


Fig 48: (iStock, n.d.)

[https://docs.google.com/presentation/d/11XMoKD0AZIY0cPAE4YUZY0YhrVay1v2MhmKH7xeXI0M/edit?pli=1#slide=id.g252db150383\\_0\\_77](https://docs.google.com/presentation/d/11XMoKD0AZIY0cPAE4YUZY0YhrVay1v2MhmKH7xeXI0M/edit?pli=1#slide=id.g252db150383_0_77)

## Intervention 2: Your ideal hospital space

### Envisaging how healing and hospital spaces can be improved

**Participant 1**

I would love to listen to calming sounds such as nature and see projections (e.g. moving clouds) on the ceiling if my mobility was limited to a hospital bed. This would distract my mind if I was feeling low or in pain.

Colour consideration such as healing greens and natural elements like plants for oxygen would stimulate the energies of the room, and offer fresh scent.

Blues can be cool but for the healing process feel too cold for healing.

Having another room in the ward dedicated to art forms and visuals would be great to break away from the confinement of a single room if isolated or ward if too noisy.

Images and symbols associated with love for more delicate patients would be encouraging with related softer colours e.g. pink

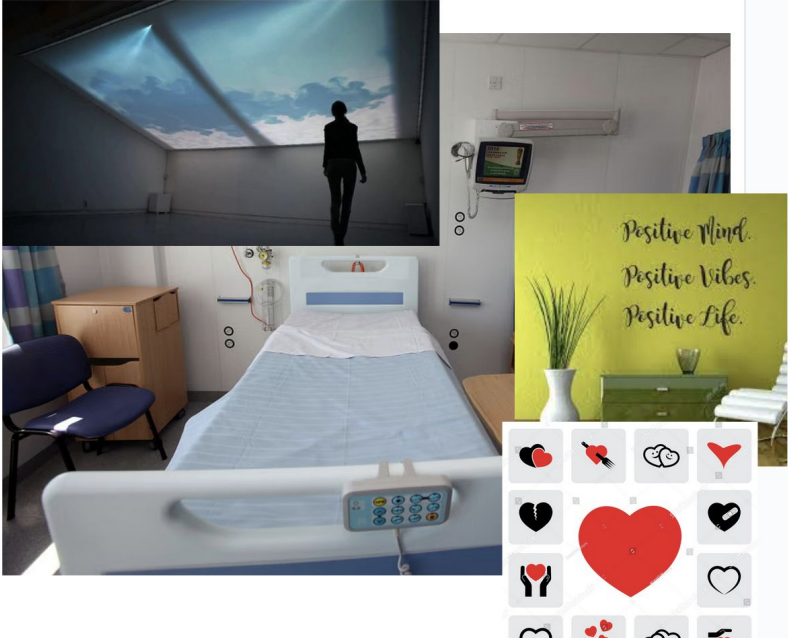


Fig 49: (von Thun, 2023)

[https://docs.google.com/presentation/d/1albHFynEdG7qqdfGOm6lWfkvfW8LK5mVadLXAByc5Q/edit#slide=id.g2553db98e4c\\_0\\_2](https://docs.google.com/presentation/d/1albHFynEdG7qqdfGOm6lWfkvfW8LK5mVadLXAByc5Q/edit#slide=id.g2553db98e4c_0_2)



#### Participant 4

I would provide the patient some lovely and customized cushions or artefacts as their companions, which make them feel like they are not alone and help with their emotions and spiritual comfort. The artefact could be any shapes, but they should all match with the medical device testing standards.

Based on the patient's preference for the type of room environment, there will be a light projector in the room for them to choose the environment they would like to immerse with. Even though some patients are not able to go outside to relieve boredom, they can still have the opportunity to engage with a different environment with the digital effects.



Fig 50: (von Thun, 2023)

## Intervention 3: Mobility in water for stroke survivors

### Suggestions for water and gaming exercises

#### Participant 1

Alongside walking in water, stimulation of arms and movements, some fun context could be added if patient is physically able and to take away the focus on exercise by creating a revised version of a watergun. This pumping action and moving of fingers could be incorporated into games for the pool such as aiming at a target or through rings



## Intervention 4: Sensory Responses

Intervention was specifically for the physiotherapist to gain feedback and insight on tactile and sensory responses

Surrealist inspiration (teacup) was again applied to this intervention

### Main findings:

-For development of gaming concepts further consider:

->Hot/cold, vibrations (to reach deep muscles)& diverse structures

->Adding levels to games

->Working with music (like the “Simon game” does)



Fig 52: (Fun Stuff, n.d.)

[https://docs.google.com/presentation/d/198uJv7O\\_ktfOBLIH6hbVM8HCM2laVYwqUny9mP70hoc/edit?hl=de#slide=id.g2757e86b1d6\\_0\\_3](https://docs.google.com/presentation/d/198uJv7O_ktfOBLIH6hbVM8HCM2laVYwqUny9mP70hoc/edit?hl=de#slide=id.g2757e86b1d6_0_3)

# Conclusion

## Strengths:

- Intervention 4 was most valuable for my direction
- >Rationale: confirmed my ideation and research stages
- Physio and stroke survivor gave the most valid feedback to build on the solution for the research question
- Low budget gaming concepts have been considered as starting points for development

## Weaknesses:

- It was difficult to find all existing games in order to avoid repetition
- Intervention were digital based, which was good for the time, but needs to be more developed now

## Going forward:

- Finalize gaming instructions, develop 3D prototypes e.g. everyday objects
- Consider how to include repetition in gaming instruction and documentation of progress (feedback from stroke survivor)

## How will games be more motivational?

Through repetitions, recording, sharing work with physio and though reaching levels

# References

---

Be healthy with Ana podcast (2021) *Chromotherapy: The secret to healing your body with color*, Spotify. Available at: [https://open.spotify.com/episode/3LGkfaQd5KWthQDLFdEGZ?go=1&sp\\_cid=b346890ed38f574c2065953111c47818&utm\\_source=embed\\_player\\_p&utm\\_medium=desktop&nd=1](https://open.spotify.com/episode/3LGkfaQd5KWthQDLFdEGZ?go=1&sp_cid=b346890ed38f574c2065953111c47818&utm_source=embed_player_p&utm_medium=desktop&nd=1) (Accessed: 06 July 2023).

Denslow, E. (2022) *Games for stroke patients that help boost cognitive agility*, *Flint Rehab*. Available at: <https://www.flintrehab.com/games-for-stroke-patients/> (Accessed: 26 July 2023).

Depression linked to longer hospital stays for illness (2012) Department of Public Health and Primary Care. Available at: <https://www.phpc.cam.ac.uk/blog/depression-linked-to-longer-hospital-stays-for-illness/> (Accessed: 04 July 2023).

Edwards, C. (2023) *Why is Britain's Health Service, a much-loved national treasure, falling apart?*, *CNN*. Available at: <https://edition.cnn.com/2023/01/23/uk/uk-nhs-crisis-falling-apart-gbr-intl/index.html> (Accessed: 02 July 2023).

Elmansy, D.R. (2023) *The Double Diamond Design Thinking Process and how to use it*, *Designorate*. Available at: <https://www.designorate.com/the-double-diamond-design-thinking-process-and-how-to-use-it/> (Accessed: 10 August 2023).

Hurst, L. (2022) *Ai is helping doctors spot and treat strokes much faster*, *euronews*. Available at: <https://www.euronews.com/next/2022/12/27/ai-technology-has-helped-to-triple-patient-recovery-from-strokes-in-england> (Accessed: 04 August 2023).

Neuro Orthopaedic Institute NOI (2009) *Mirror box therapy with David Butler*, *YouTube*. Available at: <https://www.youtube.com/watch?v=hMBA15Hu35M> (Accessed: 10 July 2023).

# Bibliography

---

A Stroke Survivor Story - Michael Johnson (2019) YouTube. Available at: <https://www.youtube.com/watch?v=ive2pcGleVY&t=4s> (Accessed: 02 August 2023).

About (n.d.) Outernet Arts. Available at: <https://www.outernetarts.com/about> (Accessed: 08 June 2023).

Anderson, L. (2022) *Develop motor skills with these sensory balls for babies, Mother & Baby*. Available at: <https://www.motherandbaby.com/baby/play/sensory-balls-for-babies/> (Accessed: 10 August 2023).

Art for all, J. and D. (2022) 61. art and healing, Spotify. Available at: [https://open.spotify.com/episode/3gcjTgqWFbEnV27Vuie1h?go=1&sp\\_cid=b346890ed38f574c2065953111c47818&utm\\_source=embed\\_player\\_p&utm\\_medium=desktop&nd=1](https://open.spotify.com/episode/3gcjTgqWFbEnV27Vuie1h?go=1&sp_cid=b346890ed38f574c2065953111c47818&utm_source=embed_player_p&utm_medium=desktop&nd=1) (Accessed: 04 August 2023).

Ashburn, A. and Lennon, S. (2009) *The Bobath concept in stroke rehabilitation: A focus group study of the ...*, Taylor and Francis Online homepage. Available at: <https://www.tandfonline.com/doi/abs/10.1080/096382800445461> (Accessed: 16 July 2023).

Aquatic therapy (2019) Spotify. Available at: [https://open.spotify.com/episode/647C1TPZPT0xPSgklkTzB?go=1&sp\\_cid=b346890ed38f574c2065953111c47818&utm\\_source=embed\\_player\\_p&utm\\_medium=desktop&nd=1](https://open.spotify.com/episode/647C1TPZPT0xPSgklkTzB?go=1&sp_cid=b346890ed38f574c2065953111c47818&utm_source=embed_player_p&utm_medium=desktop&nd=1) (Accessed: 01 August 2023).

Brewer, B. (2022) *Activities for stroke patients to try at home: 45 Fun Ideas, Flint Rehab*. Available at: <https://www.flintrehab.com/activities-for-stroke-patients/> (Accessed: 01 August 2023).

Brinkley, S. (2023) *5 visionary Surrealism Games for art students of any age*, *The Art of Education University*. Available at: <https://theartofeducation.edu/2022/05/may-5-visionary-surrealism-games-for-art-students-of-any-age/> (Accessed: 10 August 2023).

B., K. (2022) *Stroke rehab: Changing lives through water therapy*, *North Vancouver Recreation and Culture Commission*. Available at: <https://www.nvrc.ca/notices-events-blog/active-living-blog/stroke-rehab-changing-lives-through-water-therapy> (Accessed: 12 July 2023).

Cairer, M. (2023) *Sensory reeducation after stroke: How to improve sensation*, *Flint Rehab*. Available at: <https://www.flintrehab.com/sensory-reeducation-return-of-sensation-after-stroke/> (Accessed: 06 August 2023).

Cascone, S. (2019) *Yayoi Kusama's head-spinning new exhibition in New York is a dream for selfie-takers-see photos from the show here*, *Artnet News*. Available at: <https://news.artnet.com/art-world/yayoi-kusama-david-zwirner-1698315> (Accessed: 25 July 2023).

Chartwell (2017) *Presenting Yayoi Kusama - Obliteration room*, *The Chartwell Project*. Available at: <https://chartwell.org.nz/news/presenting/> (Accessed: 30 May 2023).

Chromotherapy (n.d.) Chromotherapy used in stroke recovery Bcenter Beyond Stroke. Available at: <https://bcenter.org/bwell/therapies/Chromotherapy> (Accessed: 27 June 2023).

Cold water immersion (CWI) (n.d.) Wim Hof Method. Available at: <https://www.wimhofmethod.com/cold-water-immersion> (Accessed: 01 August 2023).

desk, F. (2023) *10 games to support stroke rehab*, *Neuro Rehab Times - The world's leading neurorehabilitation magazine*. Available at: <https://nrtimes.co.uk/10-games-to-support-stroke-rehab-ststory23/> (Accessed: 26 July 2023).

Dewolf, C. (2022) *Yayoi Kusama's art of healing*, *Zolima City Magazine*. Available at: <https://zolimacitymag.com/yayoi-kusama-art-of-healing-m/> (Accessed: 30 May 2023).

Dry, J. (2018) *Denis Villeneuve's brilliant use of color theory explained in one illuminating video - watch*, *IndieWire*. Available at: <https://www.indiewire.com/features/general/denis-villeneuve-color-theory-video-1201923620/> (Accessed: 04 August 2023).

Event spaces london - outernet - chateau denmark (n.d.) Chateau denmark. Available at: <https://www.chateaudenmark.com/outernet> (Accessed: 08 June 2023).

Eye exercises for Visual Health and school success (n.d.) Eye Can Learn. Available at: <https://eyecanlearn.com/> (Accessed: 20 August 2023).

Home (n.d.) Outernet London. Available at: <https://www.outernetglobal.com/> (Accessed: 08 June 2023).

Importance of artificial intelligence in modern healthcare system (2023) LinkedIn. Available at: <https://www.linkedin.com/pulse/importance-artificial-intelligence-modern-healthcare-system-yamini-m> (Accessed: 04 August 2023).

Intelligence, I. (2023) *How the medical field is benefiting from AI in 2022 and beyond*, *Insider Intelligence*. Available at: <https://www.insiderintelligence.com/insights/artificial-intelligence-healthcare/> (Accessed: 04 August 2023).

Kahlid, A. (2023) *42 Rubber Band games for kids, Kid Activities*. Available at: <https://kidactivities.net/42-rubber-band-games-for-kids/> (Accessed: 26 July 2023).

Khandwala, A. (2020) *What does it mean to decolonize design?*, *Eye on Design*. Available at: <https://eyeondesign.aiga.org/what-does-it-mean-to-decolonize-design/> (Accessed: 23 July 2023).

Kita, K. et al. (2013) A pilot study of sensory feedback by transcutaneous electrical nerve stimulation to improve manipulation deficit caused by severe sensory loss after stroke - journal of Neuroengineering and Rehabilitation, BioMed Central. Available at: <https://jneuroengrehab.biomedcentral.com/articles/10.1186/1743-0003-10-55> (Accessed: 26 July 2023).

Kurt Johnson Photography (2023) *How to improve patient outcomes with nature's organic patterns*, *Kurt Johnson Photography*. Available at: <https://kurtjohnsonphotography.com/how-to-improve-patient-outcomes-with-natures-organic-patterns/> (Accessed: 20 May 2023).

Learn to type: Type better: Type faster (n.d.) Learn to Type | Type Better | Type Faster - Typing.com - Typing.com. Available at: <https://www.typing.com/> (Accessed: 20 August 2023).

Light therapy holds promise for stroke patients (n.d.) Heart and Stroke Foundation of Canada. Available at: <https://www.heartandstroke.ca/articles/light-therapy-holds-promise-for-stroke-patients> (Accessed: 27 June 2023).

Marya (2023) *What is Mandala Art?*, *PaintAndPainting*. Available at: <https://paintandpainting.com/what-is-mandala-art/> (Accessed: 07 June 2023).



NobleHorizons (2021) *The therapeutic connection between art and stroke victims*, Noble Horizons. Available at: <https://noblehorizons.org/the-therapeutic-connection-between-art-and-stroke-victims/> (Accessed: 12 July 2023).

Other / lab (n.d.) teamLab. Available at: <https://www.teamlab.art/other/> (Accessed: 20 July 2023).

Peace Lily Plant vastu: Peace lily plant direction as per Vastu (n.d.) Bejan Daruwalla. Available at: <https://bejandaruwalla.com/blogs/vastu-shastra/peace-lily-plant-vastu> (Accessed: 09 August 2023).

Pietrangelo, A. (2022) Left brain vs. right brain: What's the difference?, Healthline. Available at: <https://www.healthline.com/health/left-brain-vs-right-brain#left-brain-vs-right-brain-myth> (Accessed: 08 August 2023).

Prajapati, R. (2023) 11 film directors who love to play with color, MovieWeb. Available at: <https://movieweb.com/movie-directors-play-with-color/#stanley-kubrick> (Accessed: 13 July 2023).

professional, C.C. medical (n.d.) Hydrotherapy: What it is, benefits & uses, Cleveland Clinic. Available at: <https://my.clevelandclinic.org/health/treatments/23137-hydrotherapy> (Accessed: 25 July 2023).

Recovery without limits: brain science & hope for stroke survivors | Kari Dunning | TEDxCincinnati (2015) YouTube. TEDx Talks. Available at: <https://www.youtube.com/watch?v=mNYq1dFihwk&feature=youtu.be> (Accessed: 26 July 2023).

Roberts, N. et al. (2020) The healing benefits of mandalas and Zendalas, A Lust For Life - Irish Mental Health Charity in Ireland. Available at: <https://www.alustforlife.com/tools/mental-health/the-healing-benefits-of-mandalas-and-zendalas> (Accessed: 05 June 2023).

Rothstein, A. (2020) Color theory in film: A video producer's guide, IPR. Available at: <https://www.ipr.edu/blogs/digital-video-and-media-production/color-theory-in-film-a-video-producers-guide/> (Accessed: 05 July 2023).

Sangam, Z. (2020) Healing mandalas, Medium. Available at: <https://medium.com/@zensangam/healing-mandalas-66e4dec156ec> (Accessed: 05 June 2023).

Sbravate, F. (2022) Decolonizing design: What exactly are we talking about when we use the term?, Medium. Available at: <https://uxdesign.cc/decolonizing-design-what-exactly-are-we-talking-about-when-we-use-the-term-b104322ef343> (Accessed: 23 July 2023).

Scholl, M. (2021) *The feng shui command position, Simply Serene*. Available at: <https://www.simplyserene.ch/post/the-feng-shui-command-position> (Accessed: 27 June 2023).

Staczek, A.D. (2019) 10 elements of the Perfect Hospital Design - Architizer Journal, Architizer. Available at: <https://architizer.com/blog/practice/details/perfect-hospital-design/> (Accessed: 06 July 2023).

Stroke Class (2019) *3 reasons stroke survivors don't exercise & how to overcome them*, YouTube. Available at: <https://youtu.be/COJu8AHII2I> (Accessed: 31 July 2023).

Tanaaz (2015) *The healing power of the mandala, Forever Conscious*. Available at: <https://foreverconscious.com/the-healing-power-of-the-mandala> (Accessed: 03 August 2023).

Tang, V. (2023) *The healing benefits of mandalas, Destination Deluxe*. Available at: <https://destinationdeluxe.com/healing-benefits-of-mandalas/> (Accessed: 03 July 2023).

Team, A.T. (2012) *Mandala Art Therapy & Healing idea: Healing mandalas, Art Therapy*. Available at: <http://www.arttherapyblog.com/art-therapy-ideas/healing-with-mandala-art-a-multi-cultural-idea-worth-exploring/> (Accessed: 03 July 2023).

Team, E. (2022) Healing patterns: The biophilic effect of patterns in nature, TerraMai. Available at: <https://www.terramai.com/blog/biophilic-effect-healing-patterns/> (Accessed: 20 May 2023).

TEDx Talks (2015) *Recovery without limits: Brain science & hope for stroke survivors | kari dunning | Tedxcincinnati*, YouTube. Available at: <https://www.youtube.com/watch?v=mNYq1dFihwk&t=2s> (Accessed: 29 July 2023).

Touch therapy helps brains recover following stroke: UNews (n.d.) Touch therapy helps brains recover following stroke | UNews. Available at: <https://www.ulethbridge.ca/unews/article/touch-therapy-helps-brains-recover-following-stroke> (Accessed: 15 July 2023).

Tran, A. (2022) *Stroke rehab equipment: The best gadgets for rehab at home, Flint Rehab*. Available at: <https://www.flintrehab.com/stroke-rehab-equipment/> (Accessed: 17 July 2023).

VastuPlus (2023) Hospital vastu also for doctor clinic- positive prescription, Vastu Plus. Available at: <https://www.vastuplus.com/vastu-shastra-hospital.html> (Accessed: 23 May 2023).

VastuPlus (2023) Vastu Shastra for health: Vastu for good Health & Fitness, Vastu Plus. Available at: <https://www.vastuplus.com/vastu-shastra-health.html> (Accessed: 23 May 2023).

What are the different parts of the brain and what do they do? | cancer research UK (2020) YouTube. Available at: <https://www.youtube.com/watch?v=iomhIXlisKI> (Accessed: 08 August 2023).

White, K. (2022) Yayoi Kusama's playful 'obliteration room' has been a hit for 20 years. here are three surprising facts you might not know about it, Artnet News. Available at: <https://news.artnet.com/art-world/three-things-yayoi-kusama-obliteration-room-2159903> (Accessed: 30 May 2023).

Wirtz, B. and About Bryan WirtzA graduate of Penn State University and a Philadelphia native (2023) 7 best arcade games of all time: The definitive list, Video Game Design and Development. Available at: <https://www.gamedesigning.org/gaming/arcades/> (Accessed: 06 August 2023).

Written by Amber Sunner Amber is a 'two time' childhood stroke survivor, Sunner, W. by A. and Amber is a 'two time' childhood stroke survivor (2023) Five games to help your brain recover after a stroke, Different Strokes. Available at: <https://differentstrokes.co.uk/blog/five-games-to-help-your-brain-recover-after-a-stroke/> (Accessed: 26 July 2023).

Written by: Lucy Dayman      Filed under: Art | Museums And Exhibitions      Tags: Art galleries      Artists      Digital art      Experience  
Family friendly      Featured-o et al. (no date) Everything you need to know about teamlab planets, Tokyo Cheapo. Available at:  
<https://tokyocheapo.com/entertainment/museums-and-exhibitions/everything-you-need-to-know-about-teamlab-planets/> (Accessed: 25 July 2023).

Yetman, D. (2023) Incentive spirometer: What it's for and how to use it, Healthline. Available at: <https://www.healthline.com/health/incentive-spirometer> (Accessed: 26 July 2023).

Zhou, S. et al. (2021) Impairments of cortico-cortical connectivity in fine tactile sensation after stroke - journal of Neuroengineering and Rehabilitation, BioMed Central. Available at: <https://jneuroengrehab.biomedcentral.com/articles/10.1186/s12984-021-00821-7> (Accessed: 17 July 2023).

61. art and healing (2022) Spotify. Available at:  
[https://open.spotify.com/episode/3gcjTgqWFtbEnV27VuiE1h?go=1&sp\\_cid=7a10ef27c13a054e69673e2463838b0c&utm\\_source=embed\\_player\\_p&utm\\_medium=desktop&nd=1](https://open.spotify.com/episode/3gcjTgqWFtbEnV27VuiE1h?go=1&sp_cid=7a10ef27c13a054e69673e2463838b0c&utm_source=embed_player_p&utm_medium=desktop&nd=1)  
(Accessed: 14 July 2023).

21 Vastu plant to bring prosperity, peace and good luck at home! (2021) Balcony Garden Web. Available at:  
<https://balconygardenweb.com/vastu-plants-for-home/#:~:text=Vastu%20Plants%20for%20Home%201%201.%20Golden%20Pothos,...%208%208.%20Banana%20Tree%20...%20M ore%20items> (Accessed: 29 May 2023).

# Figures List

---

Fig 1: People playing a board game with cards vector image (n.d.) Vector Stock. Available at: <https://www.vectorstock.com/royalty-free-vector/people-playing-a-board-game-with-cards-vector-24130624> (Accessed: 12 August 2023).

Fig 2: Brain Exercises for Stroke Recovery (2022) Neuro X. Available at: <https://neurox.us/brain-exercises-for-stroke-recovery/> (Accessed: 19 August 2023).

Fig 3: How to become a Physiotherapist (2022) Health times. Available at: <https://healthtimes.com.au/hub/physiotherapy/8/guidance/nc1/how-to-become-a-physiotherapist/522/> (Accessed: 14 August 2023).

Fig 4: Knapp, S. (n.d.) You Tube, Lightpaintings by Stephen Knapp Documentary. Available at: [https://www.youtube.com/watch?v=0\\_KCXM3gHF8](https://www.youtube.com/watch?v=0_KCXM3gHF8) (Accessed: 17 August 2023).

Fig 5: Stephenson, B. (2021) 8 Reasons for Occupational Therapy After a Stroke, Rehab select. Available at: <https://blog.rehabselect.net/8-reasons-for-occupational-therapy-after-a-stroke> (Accessed: 24 August 2023).

Fig 6: *Wall Sticker Poster Of 'Vastu Shastra'* (n.d.) *Flipkart*. Available at: <https://www.flipkart.com/wall-sticker-poster-vastu-shastra-unframed-good-luck-positivity-decorative-cupboards-home-offices-1-piece-wall-decor-paper-print/p/itm4e3b3349cdb5> (Accessed: 04 August 2023).

Fig 7: *Feng Shui Bagua Map - Understanding What It Is And How To Use It In Your Home* (2023) *magicbricks*. Available at: <https://www.magicbricks.com/blog/feng-shui-bagua-map/130106.html> (Accessed: 04 August 2023).

Fig 8: *Four Roche Boxes, 2014, Detail*. (n.d.) *Mark Boot*. Available at: <https://www.markboot.co.uk/el-wire-sculptures/tmiovuqrcwtg6c6yvv4m7qznoxh0ge> (Accessed: 02 August 2023).

Fig 9: *Lines crossed* (n.d.) <https://www.markboot.co.uk/time-based-led-lines-crossed>. *Mark Boot*. Available at: <https://www.markboot.co.uk/time-based-led-lines-crossed> (Accessed: 02 August 2023).

---

Fig 10: *Box Set 2021 Pt3 - TV boxes* (n.d.) *Mark Boot*. Available at: <https://www.markboot.co.uk/box-set-2021-an-installation-in-three-parts/zec6qeggapzv7jbv5n3yv64wnvtgse> (Accessed: 02 August 2023).

Fig 11: *Photo: Our Rain Treatment Room. Chromotherapy in all of our treatment rooms* (no date) *tripadvisor*. Available at: [https://www.tripadvisor.in/LocationPhotoDirectLink-g43466-d9788408-i484953139-Healing\\_Touch\\_Spa-Rochester\\_Minnesota.html](https://www.tripadvisor.in/LocationPhotoDirectLink-g43466-d9788408-i484953139-Healing_Touch_Spa-Rochester_Minnesota.html) (Accessed: 02 August 2023).

Fig 12: *Pink corner; spa: chromotherapy and relax* (n.d.) *iStock*. Available at: <https://www.istockphoto.com/tr/foto%C4%9Fraf/chromotherapy-and-relax-gm155388744-19572076> (Accessed: 02 August 2023).

Fig 13: *SHS Strands for College: What Strand Should I Take if I Want to be A Doctor in the Philippines?* (n.d.) *Online shs*. Available at: <https://www.onlineshs.com/shs-strand-for-doctor/> (Accessed: 15 August 2023).

Fig 14: Tran, A. (2022) *Balance Exercises for Stroke Patients: How to Improve Stability, Flint rehab*. Available at: <https://www.flintrehab.com/balance-exercises-for-stroke-patients/> (Accessed: 22 August 2023).

Fig 15: *Things to Consider Before Getting Started in a Physio Career* (2022) *My health career*. Available at: <https://www.myhealthcareer.com.au/physiotherapy/things-to-consider-before-getting-started-in-a-physio-career/> (Accessed: 13 August 2023).

Fig 16: (von Thun, 2023): Survey screenshot number 1 (2023) photo by Cheyenne von Thun

Fig 17: (von Thun, 2023): Survey screenshot number 2 (2023) photo by Cheyenne von Thun

Fig 18: Yayoi Kusama visit (2023) photo by Cheyenne von Thun

Fig 19: (2022) Instagram. Available at: <https://www.instagram.com/mkbootsculpture/?hl=de> (Accessed: 31st of July).

---

Fig 20: Outernet arts building visit (2023) photo by Cheyenne von Thun

Fig 21: Waterbike (2023) photo by Cheyenne von Thun

Fig 22: Tactile art (2023) photo by Cheyenne von Thun

Fig 23: Vastu plant (2023) photo by Cheyenne von Thun

Fig 24: Sensory ball (2023) photo by Cheyenne von Thun

Fig 25: Marie, C. (n.d.) *Mandalas Painting*, *Pinterest*. Available at: <https://www.pinterest.com/pin/360569513897331301/> (Accessed: 26 August 2023).

Fig 26: *Be healthy with Ana podcast* (n.d.) *Spotify*. Available at: <https://open.spotify.com/show/30IVGkdf8rat14I27KPsbr> (Accessed: 23 August 2023).

Fig 27: *Neuro Orthopaedic Institute NOI* (n.d.) *You Tube*. Available at: <https://www.youtube.com/watch?v=hMBA15Hu35M> (Accessed: 24 August 2023).

Fig 28: Foot Therapy Ball (n.d.) Shopping. Available at: [https://www.nana-mall2022.com/?category\\_id=8043226](https://www.nana-mall2022.com/?category_id=8043226) (Accessed: 18 August 2023).

Fig 29: Finger Exerciser Für Hand, Finger & Handgelenk Krafttraining Übungen für Gitarre, Klavier, Golf, Tennis & Physiotherapie (n.d.) Amazon. Available at: <https://www.amazon.de/Exerciser-Handgelenk-Krafttraining-%C3%9Cbungen-Physiotherapie/dp/B01LXY91HK?th=1> (Accessed: 26 August 2023).

Fig 30: Special Supplies Therapy Putty for Kids and Adults - Resistive Hand Exercise Stress Relief Therapy Putty Kit, Set of 4 Strengths, Three Ounces of Each Putty (n.d.) Amazon. Available at: <https://www.amazon.com/Therapy-Putty-Resistive-Exercise-Strengths/dp/B01KWDGIEQ> (Accessed: 20 August 2023).

Fig 31: Patient holding two yellow exercise tools (2023) photo created with Open AI, Dall.E2

---

Fig 32: Patient using blue exercise balls (2023) photo created with Open AI, Dall.E2

Fig 33: Patient feeling different textures (2023) photo created with Open AI, Dall.E2

Fig 34: Red exercise tools example image (2023) photo created with Open AI, Dall.E2

Fig 35: Patient pressing buttons to exercise (2023) photo created with Open AI, Dall.E2

Fig 36: Exercise balls hanging on cord (2023) photo created with Open AI, Dall.E2

Fig 37: Gotthardt, A. (2018) *Méret Oppenheim Object, Paris-1936 The Museum of Modern Art*, [artsy.net](https://www.artsy.net/article/artsy-editorial-momas-first-work-female-artist-fur-lined-teacup). Available at: <https://www.artsy.net/article/artsy-editorial-momas-first-work-female-artist-fur-lined-teacup> (Accessed: 10 August 2023).

Fig 38: Moss teacup (2023) photo created with Open AI, Dall.E2

Fig 39: Spike teacup (2023) photo created with Open AI, Dall.E2

Fig 40: Gemstone teacup (2023) photo created with Open AI, Dall.E2

Fig 41: Stone teacup (2023) photo created with Open AI, Dall.E2

Fig 42: Drawing game (2023) photo created with Open AI, Dall.E2

Fig 43: Shape game (2023) photo created with Open AI, Dall.E2

Fig 44: Weisinger, C. (2020) *Codeless Reinforcement Learning: Building a Gaming AI, Open for innovation*, Knime. Open for innovation, Knime. Available at: [https://www.knime.com/sites/default/files/2020-12/Codeless\\_Reinforcement\\_Learning\\_FallSummit2020.pdf](https://www.knime.com/sites/default/files/2020-12/Codeless_Reinforcement_Learning_FallSummit2020.pdf) (Accessed: 06 August 2023).

Fig 45: Poster Mandala - Deine Schöpferkraft (n.d. Posterlounge. Available at: <https://www.posterlounge.de/p/328053.html#paid=19450> (Accessed: 02 August 2023)

Fig 46: Flower Mandala in green and brown colors. Vintage decorative elements. Oriental pattern. Islam, Arabic, pakistan, chinese, ottoman, Indian, turkish ... (n.d.) Adobe Stock. Available at: <https://stock.adobe.com/at/images/flower-mandala-in-green-and-brown-colors-vintage-decorative-elements-oriental-pattern-islam-arabic-pakistan-chinese-ottoman-indian-turkish-motifs/111580975> (Accessed: 02 August 2023).

Fig 47: Abstract mystic blue painted picture mandala of vishuddha chakra (n.d.) freepik. Available at: [https://www.freepik.com/premium-photo/abstract-mystic-blue-painted-picture-mandala-vishuddha-chakra\\_36754735.htm](https://www.freepik.com/premium-photo/abstract-mystic-blue-painted-picture-mandala-vishuddha-chakra_36754735.htm) (Accessed: 02 August 2023).

Fig 48: Blaue Mandala. Geometrischen Kreis Element auf weiß. – Vektor Illustration (n.d.) iStock. Available at: <https://www.istockphoto.com/de/vektor/blau-mandala-geometrischen-kreis-element-auf-wei%C3%9F-gm936357226-256143043> (Accessed: 02 August 2023).

Fig 49: Screenshot, Intervention 2 (2023) photo by Cheyenne von Thun

Fig 50: Screenshot 2, Intervention 2 (2023) photo by Cheyenne von Thun

Fig 51: Screenshot , Intervention 3 (2023) photo by Cheyenne von Thun

Fig 52: *Categories* (n.d.) *Fun Stuff Toys*. Available at: [https://www.fstoy.com/index.php?option=com\\_virtuemart&keyword=&category\\_id=&limitstart=&mosmsg=Sorry%2C+but+the+Product+you%27ve+requested+wasn%27t+found%21](https://www.fstoy.com/index.php?option=com_virtuemart&keyword=&category_id=&limitstart=&mosmsg=Sorry%2C+but+the+Product+you%27ve+requested+wasn%27t+found%21) (Accessed: 23 August 2023).