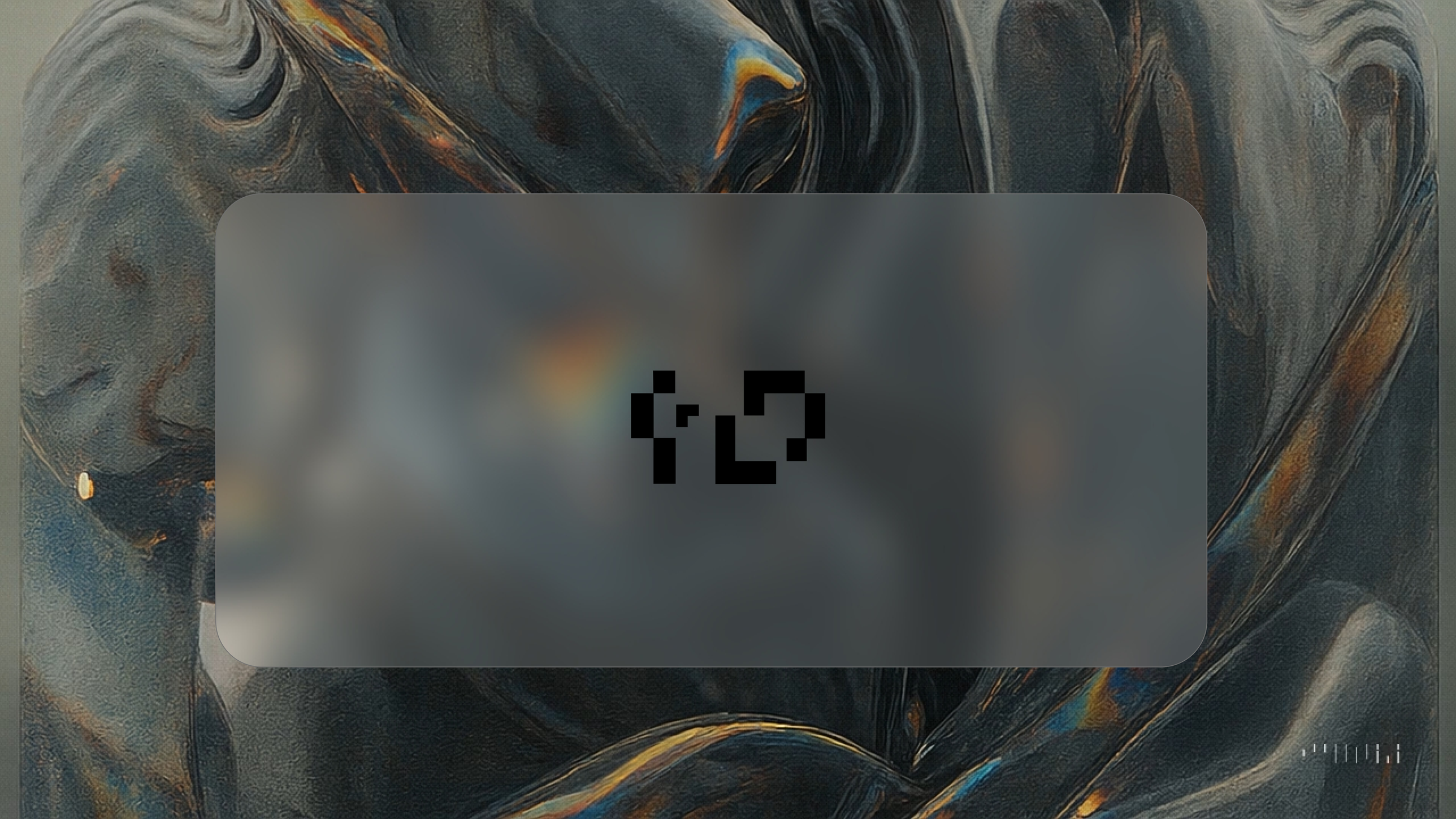


2025

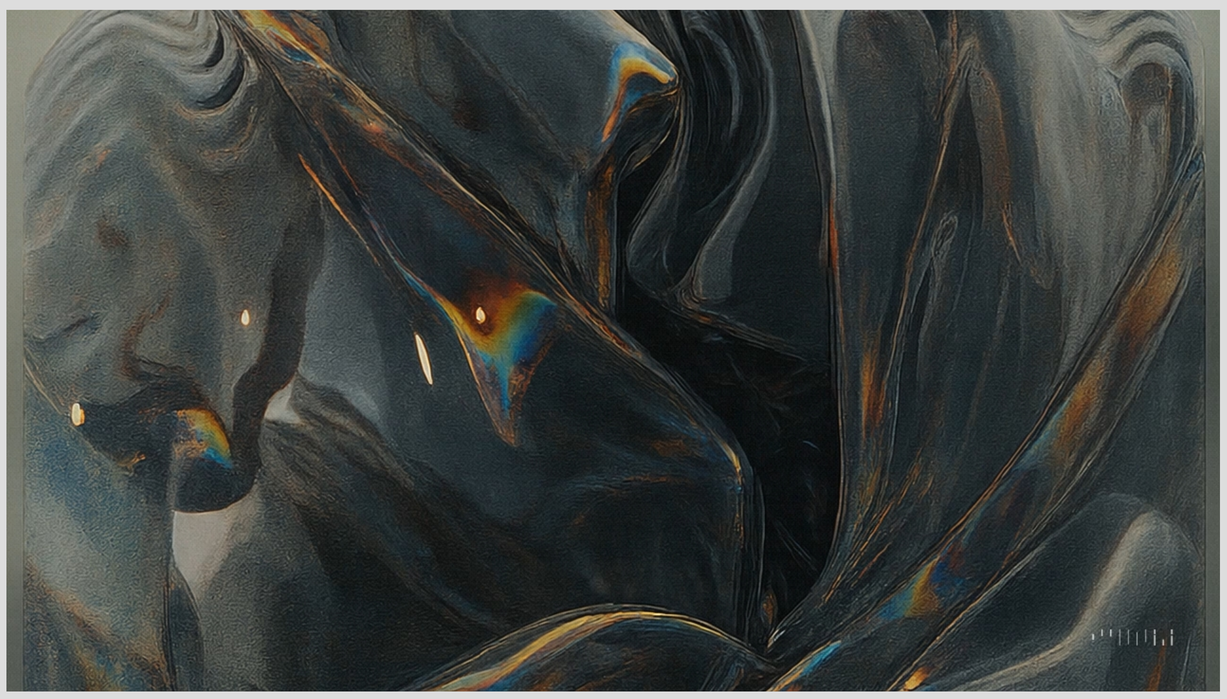
INTR 1013

HOLA! MY NAME IS
OSCAR
BELLO
VALENZO

INFORMATION DESIGN

THU 12-3pm

CHEMISTRY



ENGINEERING

Course Description

This course introduces students to structuring information and designing visual representations for effective communication.

Course Outcomes:

Upon successful completion of this course the students will have reliably demonstrated the ability to:

1. Obtain a fundamental understanding of system concepts and information complexity as a design constraint.

2. Become familiar with common approaches adapted to deal with information complexity (e.g., human-centered design).

3. Understand and apply information organization and communication techniques.

4. Practice data visualization techniques to meet design requirements.

5. Design effective dashboards.

6. Integrate information design into augmented reality applications.

Topics

Week	Topic / Task	Outcome(s)	Content / Activities	Resources and tools
1	Introduction to Information Design • Overview, historical context, and effective communication.	1, 2, 3	In-Class Exercise	*Universal Principles of Design* (optional), 2DL, Miro, Adobe Suite.
2	Principles of Design • Evolution of design and its role in communication.	1, 2, 3	In-Class Exercise	*Universal Principles of Design* (optional), 2DL, Miro, Adobe Suite.
3	Visual Hierarchy & Typography • Gestalt principles, data-ink ratio, and type hierarchy.	1, 2, 3	Assignment 1 (15%)	*The Visual Display of Quantitative Information* (optional), 2DL, Miro, Adobe Suite.
4	Principles of Graphic Integrity • Ethics and avoiding distortions in visual communication	1, 2, 3	(Online) Lecture	*Universal Principles of Design* (optional), 2DL, Miro, Adobe Suite
5	Infographic Techniques • Storytelling with data and chunking information effectively.	1, 2, 3	(Online) In-Class Exercise	*Don't Make Me Think* (optional), 2DL, Miro, Adobe Suite.
6	Workshop / Additional Class Time • Infographic refinement	3, 4	Assignment 2 (15%)	2DL, Miro, Adobe Suite.
7	Data Visualization Principles • Chart-junk elimination, clarity, and multivariate displays.	1,2,3	In-Class Exercise	*The Visual Display of Quantitative Information* (optional), 2DL, Miro, Adobe Suite.
8	INTERSESSION WEEK			
9	Dashboard Design Principles • Functional grouping, feedback loops, and usability.	4, 5	Assignment 3 (20%)	*Information Dashboard Design* (optional), 2DL, Miro, Adobe Suite.
10	Tools & Technologies for Dashboards • Workshop on digital dashboard tools (e.g., Tableau, Power BI).	4, 5	In-Class Exercise	*Information Dashboard Design* (optional), 2DL, Miro, Adobe Suite.
11	Introduction to AR • Basics of AR and its applications in information design	5, 6	Assignment 4 (20%)	Books (optional) 2DL- Brightspace. miro.com Adobe Suite.
12	AR Applications & Ethics • Case studies and ethical considerations of AR.	5, 6	In-Class Exercise	*Designing for Interaction* (optional), 2DL, Miro, Adobe Suite.
13	Focus on AR Artifact Refinement • Workshop to refine AR designs.	5, 6	In-Class Exercise	Books (optional) 2DL- Brightspace. miro.com Adobe Suite.
14	Portfolio Compilation	1,2,3,4	Assignment 5 (20%)	Books (optional) 2DL- Brightspace. miro.com Adobe Suite.
15	Final Presentation • Showcase portfolio, demonstrating design progression	1,2,3,4	Assignment 6 (10%)	Books (optional) 2DL- Brightspace. miro.com Adobe Suite.

Evaluation

Assessment Tool:	Description:	Outcome(s) assessed:	Description:	Due / Week:	% of Final Grade:
Assignment 1	**Poster on Principles of Design** Develop a poster visualizing key design principles (e.g., hierarchy, alignment, etc). **Submit**: sketches, drafts, and final design with a reflection.	1, 2, 3	Introduces foundational design principles and explores hierarchy, alignment, and accessibility. Helps students understand system concepts and apply visual communication techniques effectively..	3	10%
Assignment 2	**Visual Model Creation** Redesign a misleading visualization. **Submit**: the original design, the redesign, and a critique explaining your choices.	1, 2, 3	Students critically analyze a poorly designed visualization and redesign it, focusing on clarity and ethical representation. This assignment deepens their understanding of information complexity and develops their ability to use communication techniques to improve design integrity.	6	20%
Assignment 3	**Infographic Design** Create an infographic that tells a story with data. **Submit** a storyboard, draft, and final design with peer-reviewed feedback.	3,4	Teaches students to organize and present data visually, emphasizing storytelling and usability. Develops skills in applying data visualization techniques to communicate complex ideas effectively.	9	20%
Assignment 4	**Dashboard Design** Design an interactive dashboard for presenting complex data. **Submit** a wireframe, prototype, and completed dashboard.	4,5	Requires organizing and presenting large datasets clearly and functionally. Focuses on user needs, usability, and interactivity, showcasing the practical application of data visualization techniques.	12	**20%**
Assignment 5	**AR Artifact Creation** Create an AR artifact that enhances user interaction. **Submit** a proposal, storyboard, prototype, and final artifact.	5,6	Explores how to integrate spatial design principles into augmented reality. Focuses on creativity, usability, and overcoming the challenges of designing for immersive technologies.	14	**20%**
Assignment 6	**Portfolio Compilation & Presentation** Compile all assignments into a professional portfolio. **Submit** include reflective summaries for each project and present the portfolio to the class.	1-6	Synthesizes all outcomes, highlighting the student's ability to apply design principles across various projects and platforms.	15	**10%**

ASSIGNMENT POLICY:

All projects must be submitted to pass this course.
Semester marks are based on the evaluation of projects and in-class assignments. Obtaining missed assignments and/or projects is the student's responsibility.

In class assignments must be completed within the assigned class time to receive marks. No late submissions are accepted without prior consent of the Professor.

Late project submissions are subject to a late penalty of 10% (i.e. if you received a B, it would become a C.) Projects submitted later than 5 school days, will not be accepted without a doctor's note or without prior permission from the Professor

ASSIGNMENT POLICY GENERATIVE AI:

Use of Generative AI is Permitted in this Course: In all submissions in which you use Generative AI, you must reference its use. Failing to disclose the use of Generative AI is considered a breach of academic integrity, and George Brown College's Academic Integrity Policy will be applied. However, it is important to understand that all large language models are known to make up incorrect facts, fake citations, and inaccurate outputs, and image - generation models can occasionally create offensive products. You are responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit regardless of whether it originally comes from you or a Generative AI source. If you are uncertain if you have used GenAI and/or referenced it appropriately, please speak with your professor.

What is Information Design ?

Information Design is the practice of analyzing data and content to develop clear, effective, and engaging visual communications.

It helps people understand complex information by organizing it in a meaningful, accessible way.

Helps people make decisions through design.

Making data clear, engaging, and useful.

Seen in apps, dashboards, posters, signs, and more.

Influencing

Informing

Motivating

Is the process of creating information environments to achieve communication objectives such as:

Information environments include media, publications, software, websites, games and physical environments such as a factory floor.

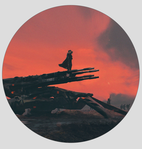
The following are common elements of information design:

INTERACTION DESIGN

The design of user interfaces that allow users to navigate, create and share information.

ILLUSTRATION

Creating visual elements such as a logo.



INFORMATION ARCHITECTURE

Designing structures for information such as a sitemap for a website.

TYPOGRAPHY

The look and feel of written language.

DATA SCIENCE

Extracting knowledge from data and communicating it in a way that is not misleading.

DISPERSION

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COMMUNICATION

The ability to resonate with target audience to engage and inform.

"Information Design is all about the psychology and physiology of how users access, learn, and remember information; the impact of colours, shapes and patterns, learning styles."

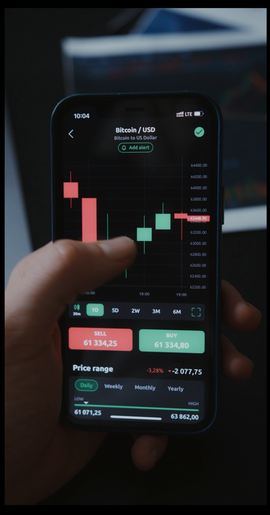
Info Design Key Elements:

Clarity:
The ability to eliminate ambiguity.

Usability:
Ensuring functionality and ease of interpretation.

Relevance:
Tailoring information to the intended audience.

Principles Of Effective Communication



Simplify Complex Data:
Focus on the essential elements and avoid overloading the design.

Understand Your Audience:
Research their needs, preferences, and context to ensure the message resonates.

Balance Aesthetics and Functionality:
Create visuals that are engaging but do not compromise on the clarity of information.

Key Questions:

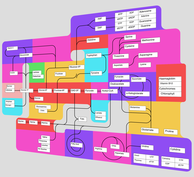
What message needs to be conveyed?

What action or insight should result from t communication?

Who is the intended audience?

Purpose

Aid decision-making by presenting concise, actionable insights.



Simplify complex ideas

Through minimalist design, as seen in Edward Tufte's elimination of unnecessary elements ("chartjunk") to maintain the integrity of data

REFERENCE:

https://www.geeksforgeeks.org/machine-learning/5-key-data-visualization-principles-maximizing-clarity-and-minimizing-chartjunk-simplifying-visual-representations

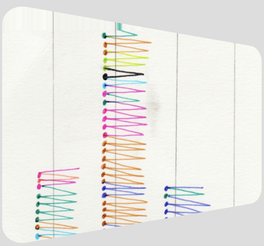
Minimizing Chartjunk-Top 2 Products Sold

Provide emotional resonance

by connecting data to personal experiences, a method exemplified by projects like Dear Data.

REFERENCE:

Dear-data.com



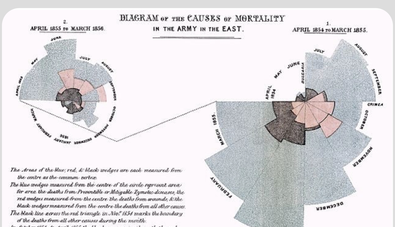
Leveraging symbols for clear communication.

REFERENCE:

By Otto Neurath - pages for the book Basic by Isotype, Public Domain, https://commons.wikimedia.org/w/index.php?curid=104585118

Enhance understanding by clarifying complex datasets,

Such as Florence Nightingale's polar area diagrams illustrating causes of mortality in military campaigns.



ARTWORK

The decisions you make regarding form.

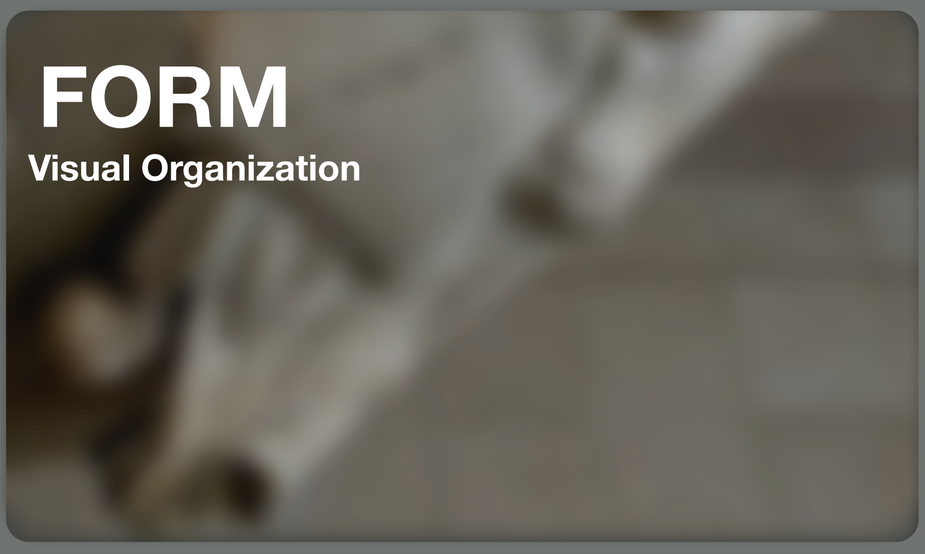
(Type of line/shape; selection of value/color;
Size of the work; type of balance, etc.)

Shape the work’s impact and meaning.

Components of an Artwork

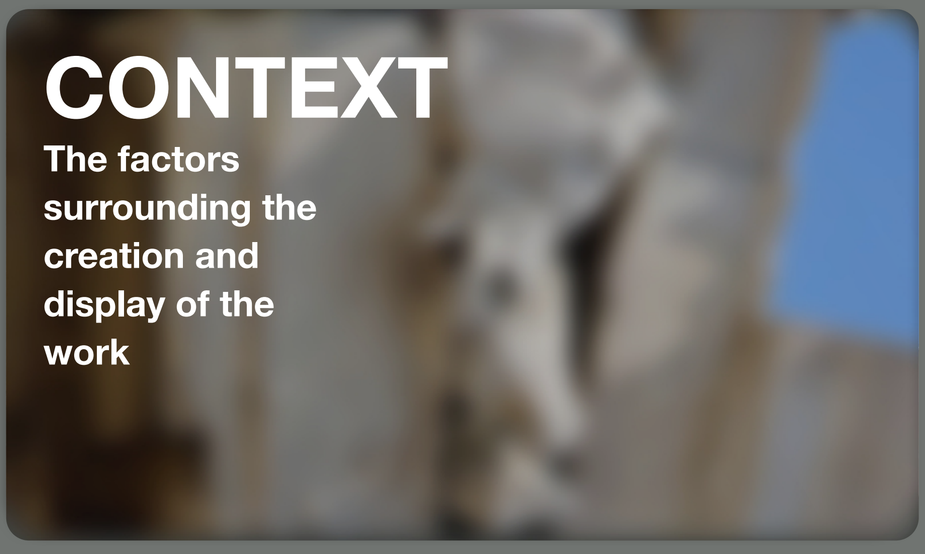
SUBJECT

The depicted objects



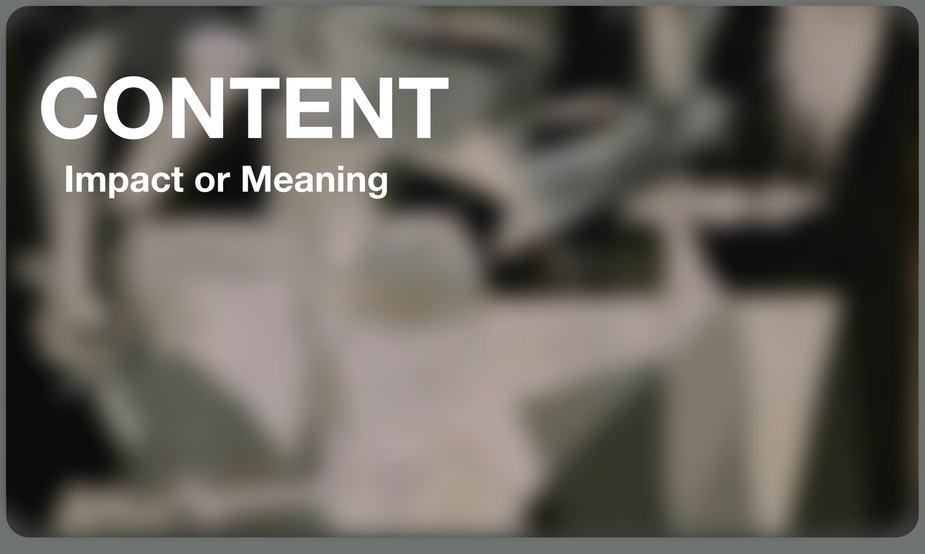
FORM

Visual Organization



CONTEXT

The factors surrounding the creation and display of the work



CONTENT

Impact or Meaning

SUBJECT

The depicted objects

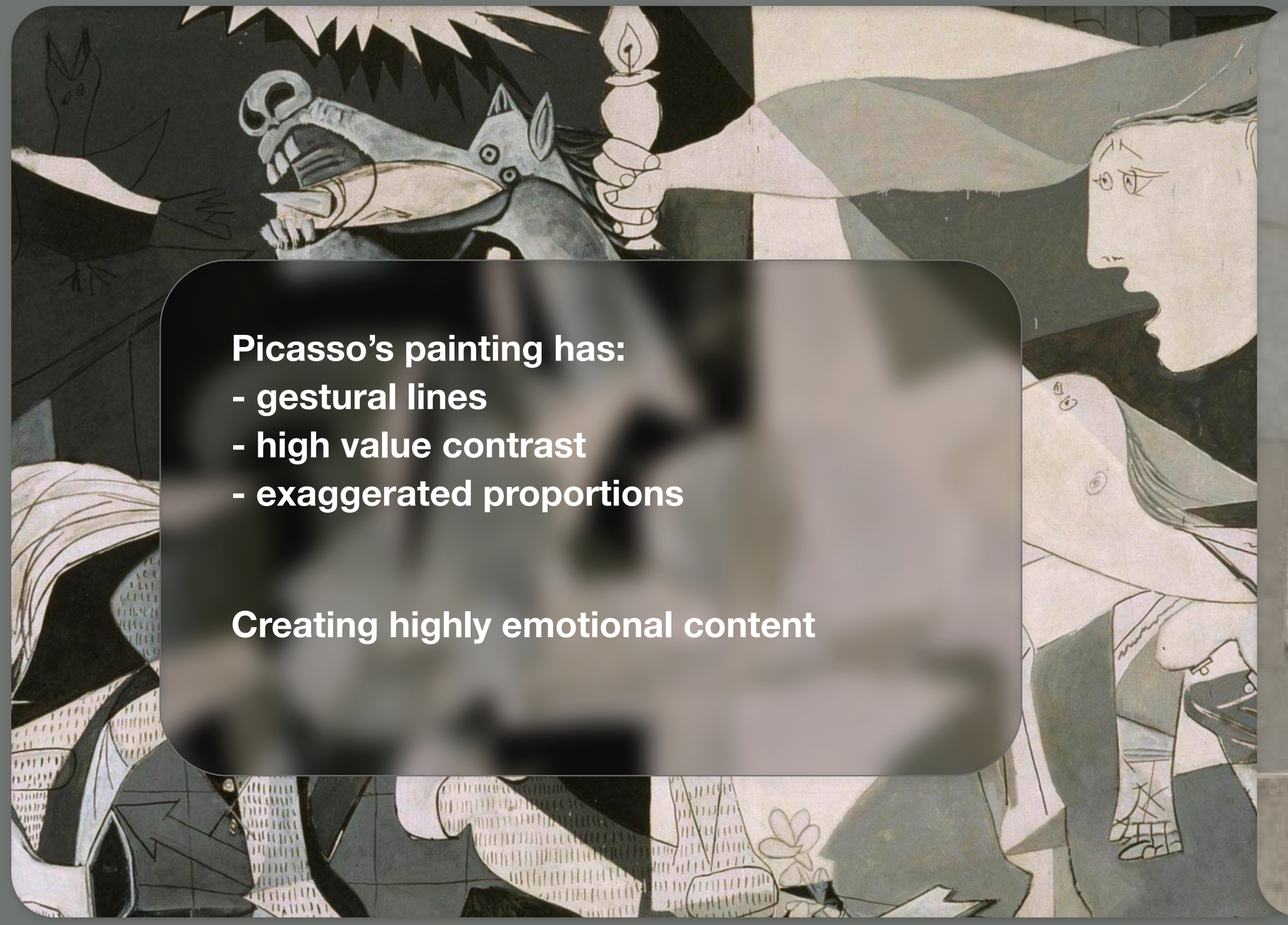
A horse head is the **subject** of both works

However, the artist have used **form** very differently

and each has a different **context**

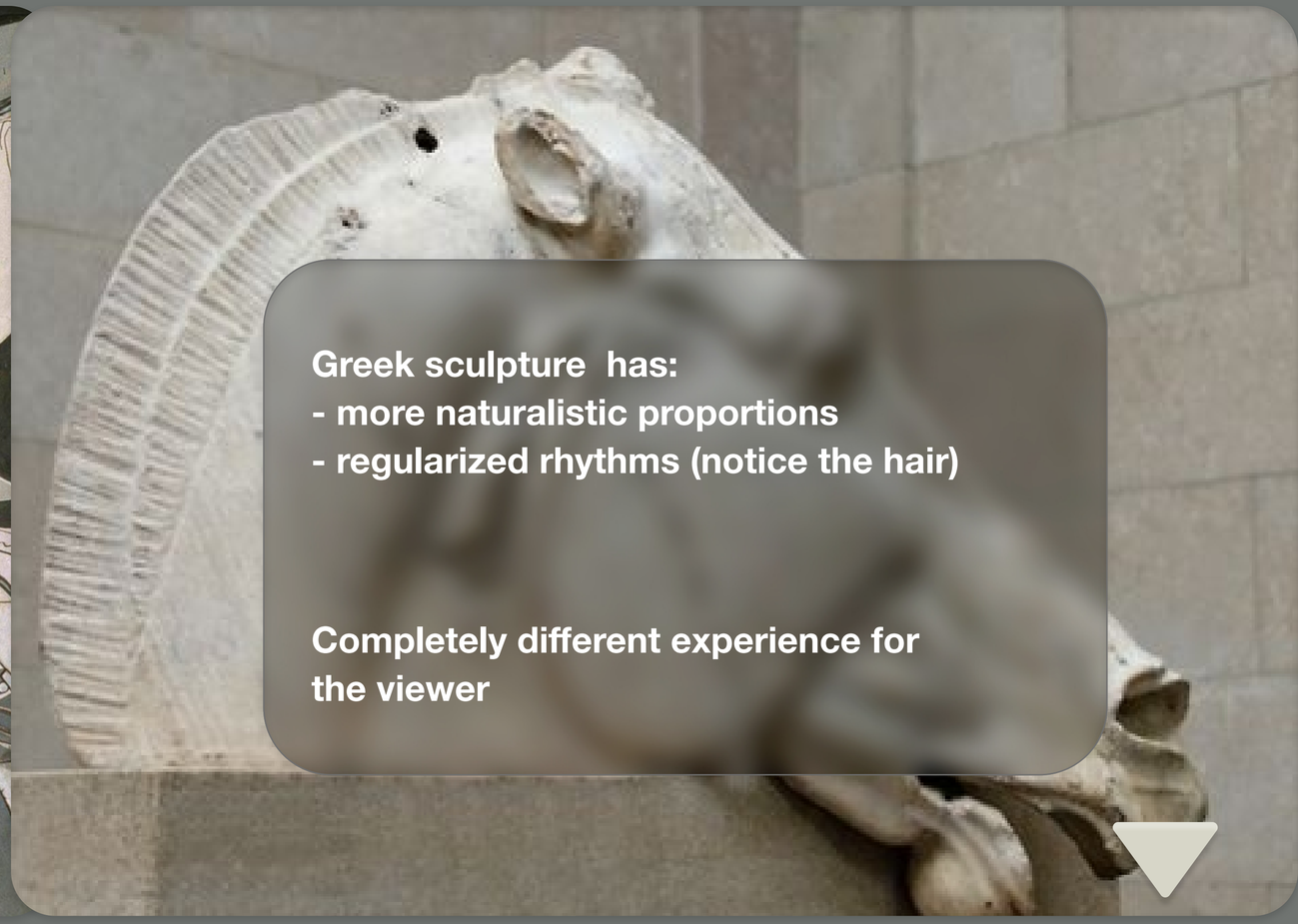
FORM

Visual Organization



Picasso’s painting has:
- gestural lines
- high value contrast
- exaggerated proportions

Creating highly emotional content



Greek sculpture has:
- more naturalistic proportions
- regularized rhythms (notice the hair)

Completely different experience for the viewer

CONTENT

Impact or Meaning

The differences in **content** are created by the differences in **form** and **context**, not the **subject** matter

CONTEXT

The factors surrounding the creation and display of the work

Additionally, Picassso's context is very different .

This horse head is a detail taken from the larger painting, "Guernica" (1937)

Guernica, the most ancient town of the Basques area was destroyed by air raiders.

The bombing lasted ~3 hours.
Fighters machine gunned civilians who had taken refuge in the fields

The context of this sculpture is very different from the Picasso piece.

"Head of The Horse of Selene's Chariot."
East Pediment of the Parthenon (438 -432 BCE)
British Museum, London.

Selene is Greek for Moon.
According to Greek Mythology, this is one of the horses which pulled the moon across the sky all night and now, exhausted, is pulling the moon into the sea.

The artwork was intended to be viewed from the ground, looking up towards the roof.

Introduction to Design Principles:

The foundation of all effective visual communication.

These principles ensure that designs achieve both functionality and aesthetic appeal, making the information accessible to the intended audience.

Elements of Design

“The building Blocks of design”.

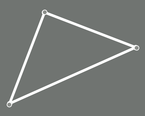
The elements of design are the parts that define the visuals, the tools and components that a person uses to create a design composition.

LINE

Dots or strokes which show motion and connect two points.

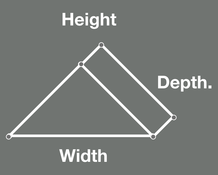
SHAPE

Shape is the creation of the connection of a line from the start to the end



FORM

Objects that have three dimensions.



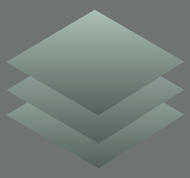
COLOR

Every color can be bright, dull, dark or light.

CMYK: Cyan%, Magenta%, Yellow%, Black%,
HEX: N1N1N1
RGB: %Red, %Green, %Blue
PANTONE: CODE

VALUE

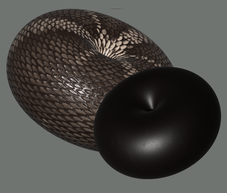
Value refers to relative lightness and darkness and different levels of contrast.



SATURATION
BRIGHTNESS
CONTRAST

TEXTURE

Texture is the perceived look, feel, or quality of a surface.



Texture can be actual or implied.

SPACE

Shape and Form are defined by space around and within them. Space can be negative or positive.

The shape itself is the positive space, and the space around the shape is the negative space.

Principles of Design

These principles are tenets that all designers are encouraged to follow in order to create an effective, impactful composition.

The fundamental principles include balance, contrast, emphasis, hierarchy, proportion, and unity.

BALANCE

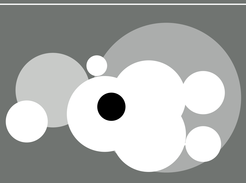
Balance is the principle governing how we distribute the elements of a design evenly. Balanced designs tend to appear calm, stable and natural, while imbalanced designs make us feel uneasy

CONTRAST

We use contrast to make an element stand out by manipulating differences in colour, value, size and other factors.

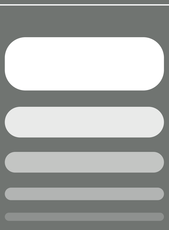
EMPHASIS

Dominance creates focus on a single element.
We can use colour, shape, contrast, scale, and/or positioning to achieve this.



HIERARCHY

Hierarchy shows the difference in importance of the elements in a design. Colour and size are the most common ways we can create hierarchy

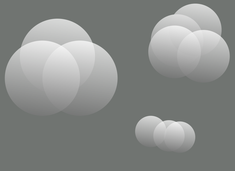


PROPORTION

Scale describes the relative sizes of the elements in a design. By using scale to make an element larger than others appearing with it, you can emphasise that element. Not only can you make an element stand out this way—you can also use scale to create a sense of depth

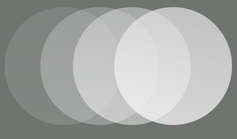
UNITY

Unity has to do with creating a sense of harmony between all elements in a page. A page with elements that are visually or conceptually arranged together will likely create a sense of unity.



RYTHM

Direct the eye through from with the use of repetition of shape, lines or colour and helps create mood.



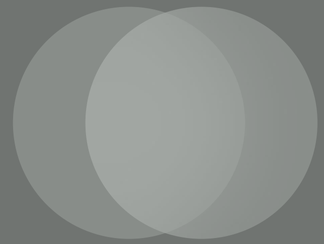
BALANCE

This principle is achieved when we organize elements in a particular direction with respect to how people usually scan pages (e.g left, right, center).

Group elements, to create balance, to create structure, to create connections between elements and to create a sharp and clear outcome.

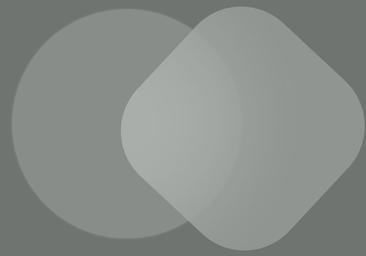
SYMMETRY

Elements on either side of the axis are arranged similarly.



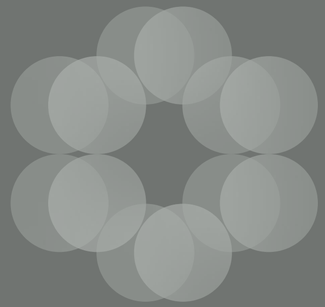
ASYMMETRY

Elements on each side differ in shape but still are in visual equilibrium



RADIAL

Elements are arranged around a circular form.



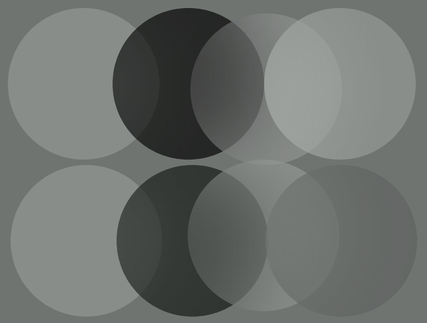
CONTRAST

Refers to the difference between various elements of a design that makes them stand out.

Contrast functions to create emphasis on a particular design element e,g line, text, color, etc, thereby drawing users' attention.

LIGHT AN DARK

Clear Foreground and Background separation and contrast between elements



LINE

Elements of varying textures & forms bring about a contrasting effect

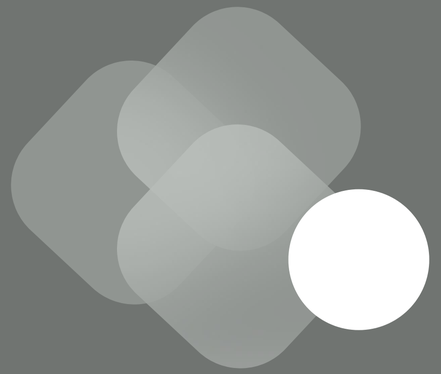
DOMINANCE

Dominance creates focus on a single element. We can use colour, shape, contrast, scale, and/or positioning to achieve this.

For instance, most websites have a main “hero” image, which uses dominance to appeal to users, drawing them to it naturally.

HIGHLIGHT

Breaking the visual hierarchy using form to lay emphasis.

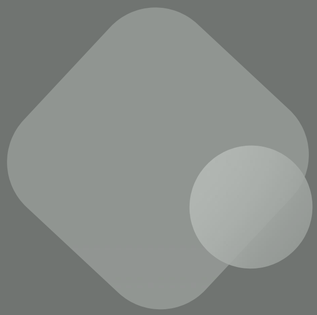


COLOUR

To distinguish between elements in a series of similar forms.

SIZE

Elements of different sizes focus the viewers attention accordingly.



UNITY

Unity has to do with creating a sense of harmony between all elements in a page.

A page with elements that are visually or conceptually arranged together will likely create a sense of unity.

PROXIMITY

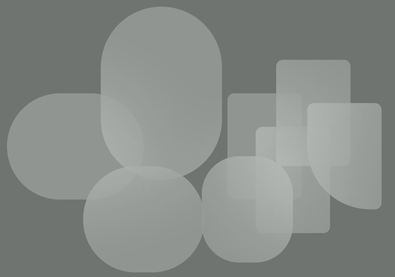
A sense of the distance between elements.

CONTINUATION

The sense of having a line or pattern extend.

SIMILARITY

Ability to seem repeatable with other elements.



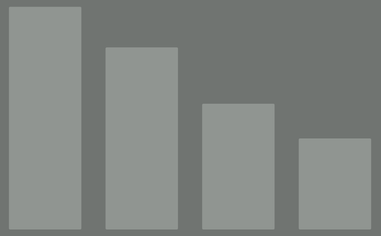
SCALE

Scale describes the relative sizes of the elements in a design. By using scale to make an element larger than others appearing with it, you can emphasise that element.

Not only can you make an element stand out this way—you can also use scale to create a sense of depth (since nearer objects appear larger to the human eye). Exaggerated scales of images also add a certain level of interest and drama to them.

SIZE

Elements of different sizes in relationships with each other.



RATIO

Elements related to each other in a ratio appear together in visual harmony.

DIVISIONS

Thee creat focal points that automatically give a sense of the relationships

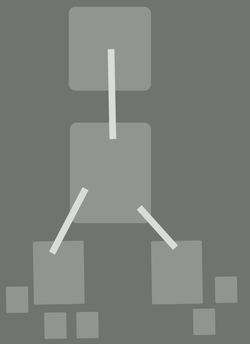
HIERARCHY

Hierarchy shows the difference in importance of the elements in a design. Colour and size are the most common ways we can create hierarchy

for instance, by highlighting a primary button, or using larger fonts for headings. Items that appear at the top of a page or app also tend to be viewed as having a higher hierarchy than those appearing below.

TREES

Elements arranged in the order of a tree with a trunk, branches and sub-branches.



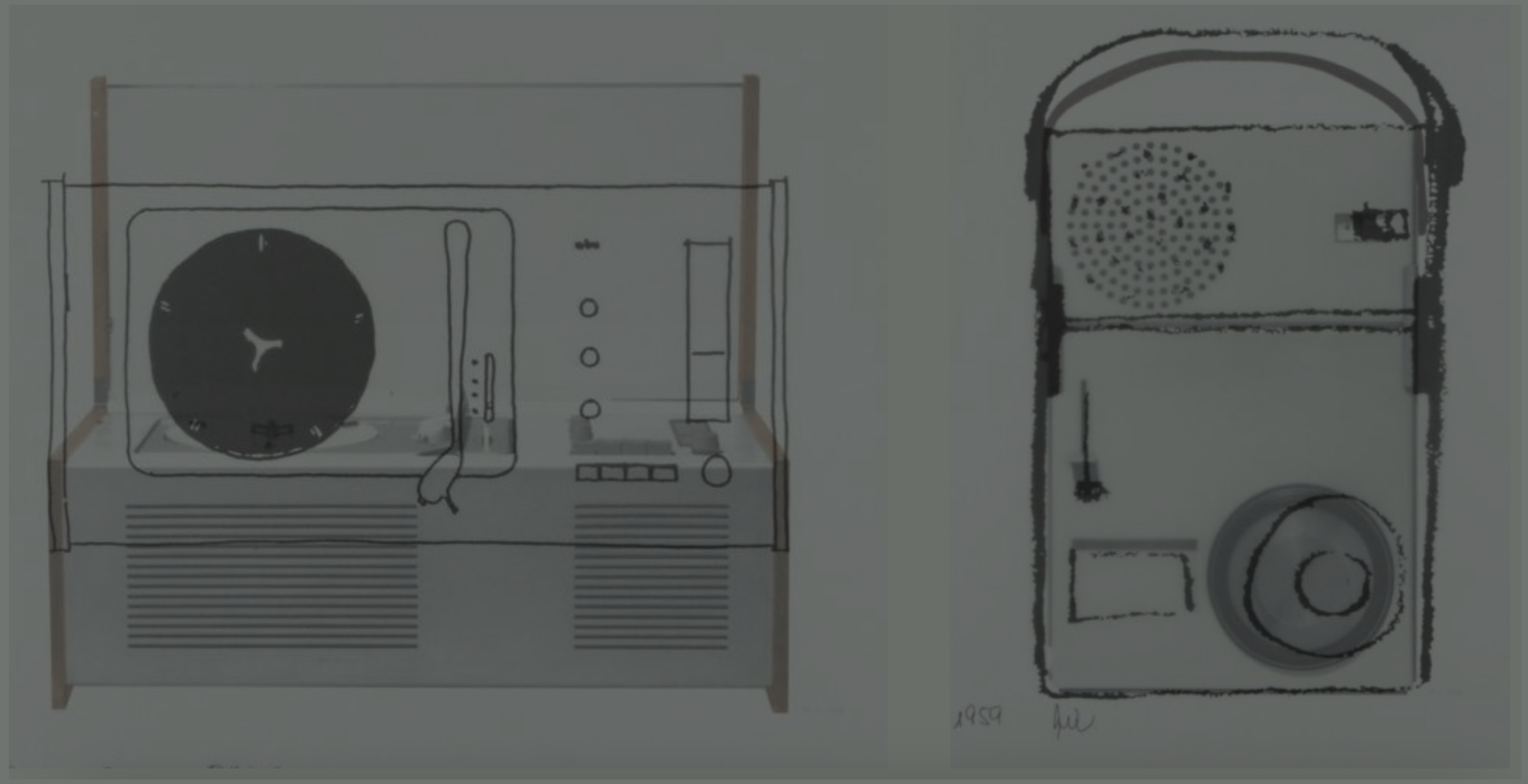
NESTS

Elements mapped on to each other as parents children and grand children.

WEIGHT

Elements of the same weight belong to the same class of hierarchical positions.

Principles of Design

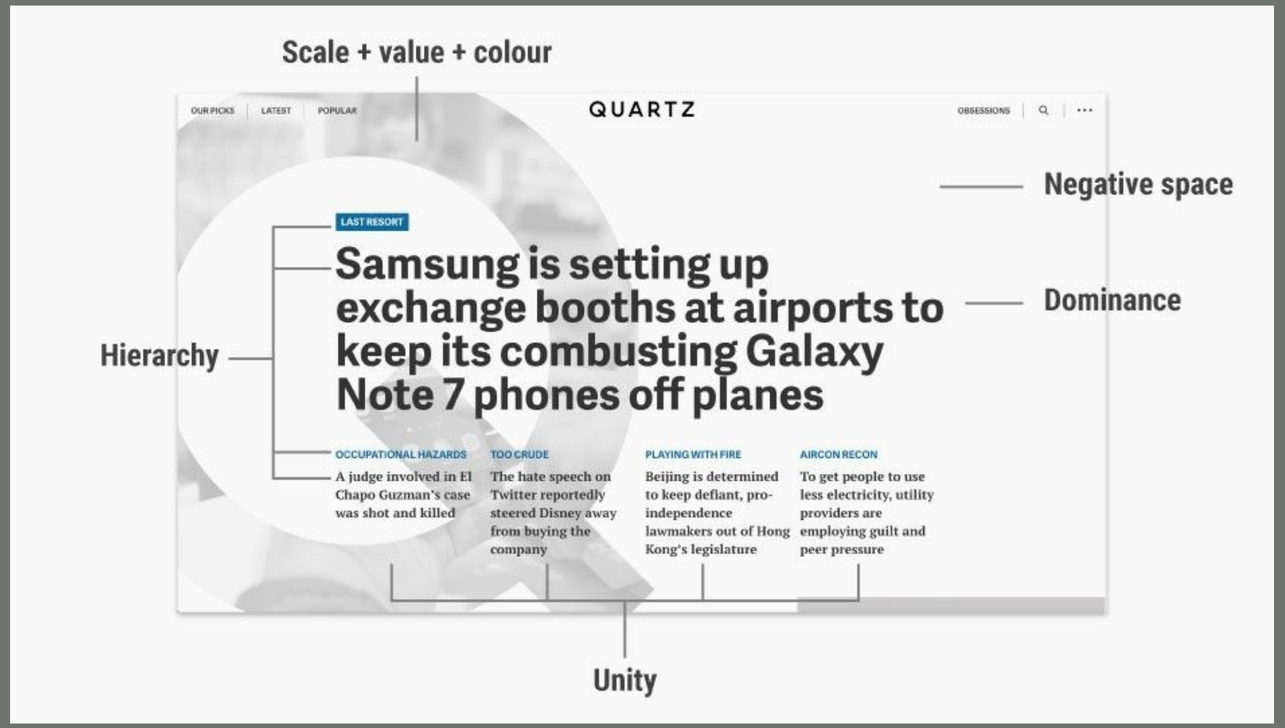


Any product — from software products such as websites and apps to hardware products such as toasters and hairdryers — can be broken down into fundamental elements of visual design

Principles of Design

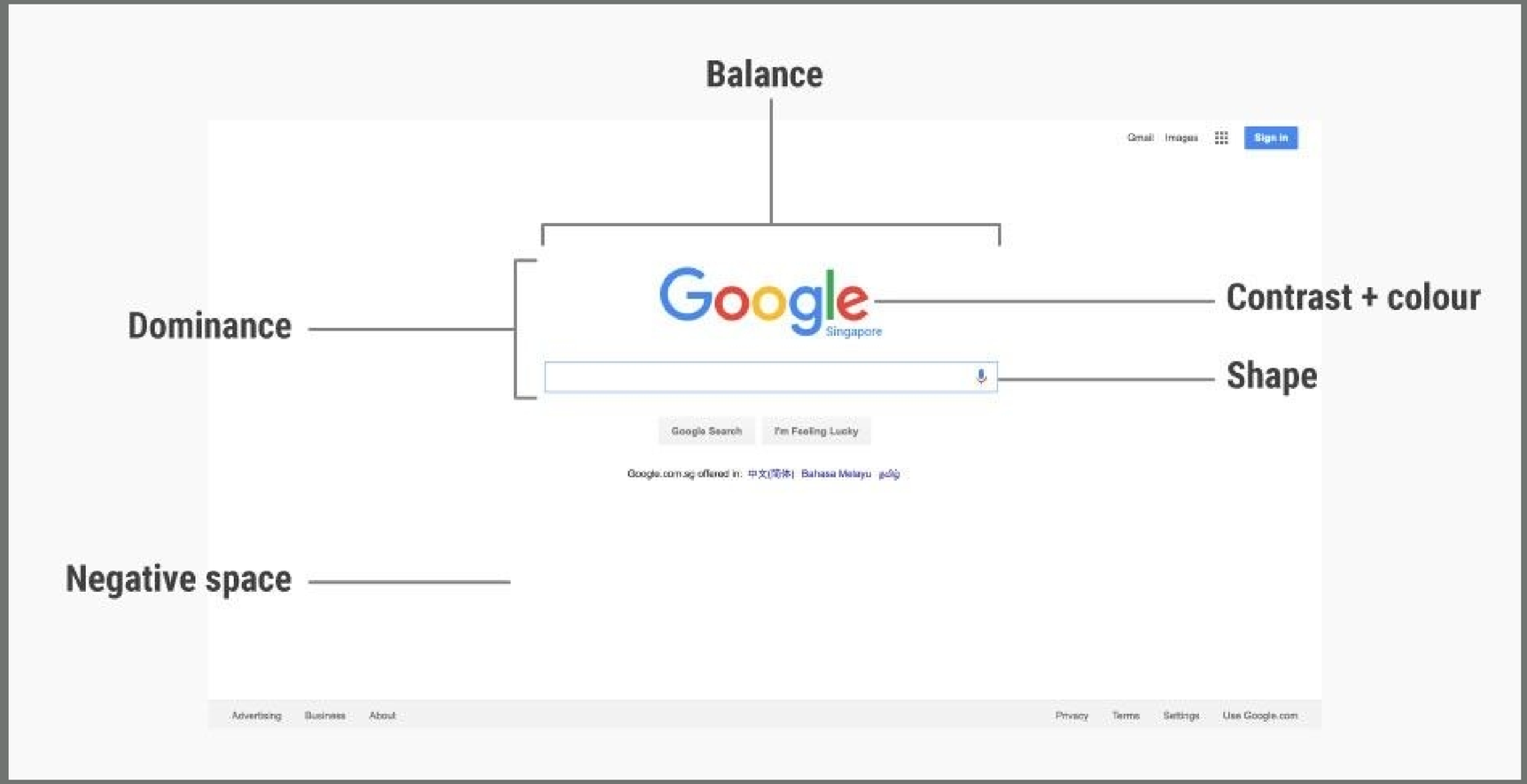
These elements and principles together form the building blocks of visual design, and a firm understanding of them is crucial in creating a visual design of any product.

Principles of Design



To create the aesthetic style of a website or app, we work with fundamental elements of visual design, arranging them according to principles of design.

Principles of Design

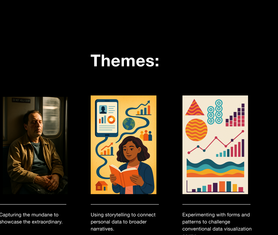


In particular, we tend to perceive the overall shape of an object first, before perceiving the details (lines, textures, etc.) of the object.

Introduction To “Dear Data”

Overview:

Dear Data is a year-long, analog data drawing project by Giorgia Lupi and Stefanie Posavec, two award-winning information designers living on different sides of the Atlantic.



By collecting and hand drawing their personal data and sending it to each other in the form of postcards, they became friends.

Dear Data is now also a beautiful 200-page book

Themes:

Capturing the mundane to showcase the extraordinary.

Using storytelling to connect personal data to broader narratives.

Experimenting with forms and patterns to challenge conventional data visualization norms.

Sample Visualizations from Dear Data

Note the hand-drawn stamps: those postcards were delivered in person in New York!

This week Giorgia and Stefanie tried gathering data in small notebooks (tedious), but soon switched to making notes on their phones (much easier). Stefanie's favourite clock to capture: a bell tolling the time in a town in Devon.

www.dear-data.com

Watch the video:

https://lovemydata.com/2021/11/09/manual-data-design-from-stephanie-posavec/

https://vimeo.com/133609905

In-Class Activity

Hands-On Exercise:

1. Reflect on your daily routines and interactions.

2. Choose one activity or habit (e.g., meals eaten, commute times, conversations, or emotions).

3. Track and collect data from this activity for 10-15 minutes in class or use pre-existing information from your day.

Visualization Challenge:

Using the data collected, create a quick hand-drawn sketch visualizing the patterns, quantities, or unique characteristics observed.

Consider applying techniques inspired by Dear Data, such as playful forms, symbols, or personal storytelling.

Sharing & Feedback:

Share your visualizations with the group.

Discuss how design choices helped convey the data and any challenges faced during the process.

A1 Overview

Goal:

Develop sketches for a poster that incorporates core design principles.

Focus:

Balance, Contrast, Emphasis, Hierarchy, Proportion, And Unity.

Ensuring that the visual communicates a clear and compelling message.

Deliverable:

4 POSTERS PER PDF FILE with your name

Workshop Steps

Sketching Session:

Brainstorm ideas and themes to visualize abstract concepts in a graphic form that aligns with the poster's purpose.

Develop initial concepts and layouts focusing on at least three principles.

Peer Feedback:

Present sketches for constructive critique, focusing on alignment with design principles.

Submit your finalized sketches at the end of the class for review and documentation.

Next Steps

Refine initial sketches based on peer and instructor feedback.

Research additional inspiration from design books, articles, or online portfolios.

Prepare for next week with a polished concept ready for further development.