CHAPTER II

LITERATURE REVIEW

2.1 Website Design

Landa (2019) A website is a group of interconnected pages or files that are accessible on the World Wide Web. Website serves different purpose, and its intended use differs depending on the contents. For example, entertainment, editorial, promotional, and informational (p. 334). This project uses website specifically as an informational media regarding the use of Gerunds in English Language.

2.1.1 Information Media

Information media serves to collect, process, and restructure information, making it more accessible and beneficial for its intended audience. Information media encompasses various tools, including graphic, photographic, and electronic mediums, which facilitate the capturing, processing, and reorganization of visual information (Parasanti, 2018, p. 15). Yaumi (2018, p. 6) explained information media as tools or means used to deliver messages and support the teaching and learning process effectively.

2.1.1.1 Function of Information Media

Information media can serve its function as a knowledgeable media. Normasyhuri et al. (2023, p. 248) stated that this can be accomplished by delivering educational material, providing precise information, conducting thorough analyses, and highlighting influential role models. Yaumi (2018, p. 6-8) explained that information media have several key roles in the learning process. They help deliver messages clearly, support learning activities, and increase student interest and involvement. Media also make it easier to explain difficult or abstract topics and allow learning to be more flexible and personalized. In the digital era, these roles

have developed further as media become more interactive and dynamic, making it easier to share information and involve users actively.

2.1.1.2 Types of Information Media

Udris (2024, p. 1) categorized types of media outlets in three categories, namely print, broadcast, or digital online media. Yaumi (2018, p. 11-12) categorized learning media into visual, audio, audio visual, multimedia, text, model, and realia. Katona et al. (2022, p. 90) stated that visual learning media can make the increase of motivation for students to learn a material. The use of visual in a learning media helps students navigate learning materials, as it is more engaging.

Research by Chen (2022, p. 1-3) stated that online or digital media are divided into two categories. Traditional digital media, such as television and computer, and a new form of digital media, such as social media, websites, tablets, and video games. Digital media helps the process of finding resources easier. For instance, students can find educational learning materials through the help of search engine.

Chen (2022, p. 1) also stated that printed media is the format of any medium that uses paper. Such as, newspaper, journals, posters, and flyers. Research by Yaumi (2018, p. 136) stated that printed learning media can be in the form of textbook, learning module, and article.

2.1.2 Terms in Website

In website design, designers relied on key terms that represent essential principles guiding the creation of a website. These terms define essential concepts that shape the overall functionality, aesthetics, and user experience of a website. According to Landa (2019, p. 336-337) some of the most important website-related terms include:

2.1.1.1 Content

Content refers to the information presented to visitors on a website, encompassing both text and visuals. Content should be well-

structured and well-written and easily accessible. The content on the website should align with the materials of English grammar's gerunds in educational contexts. The content also needs to be arranged in a way that is fitting to the users' general needs (Landa, 2019, p. 336).

2.1.1.2 Information Architecture

Information architecture refers to the structured organization of website content in a hierarchical order. Arranging content from general to specific enhances user navigation, ensuring a seamless browsing experience. To prevent user frustration, the author must establish a clear and well-organized information architecture from the start (Landa, 2019, p. 336).

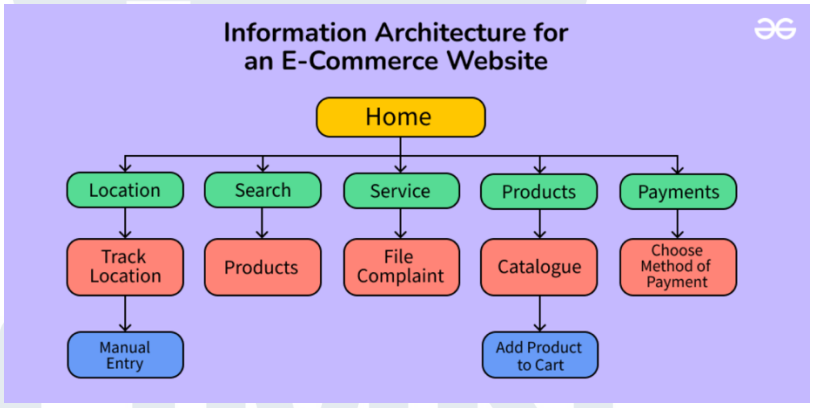
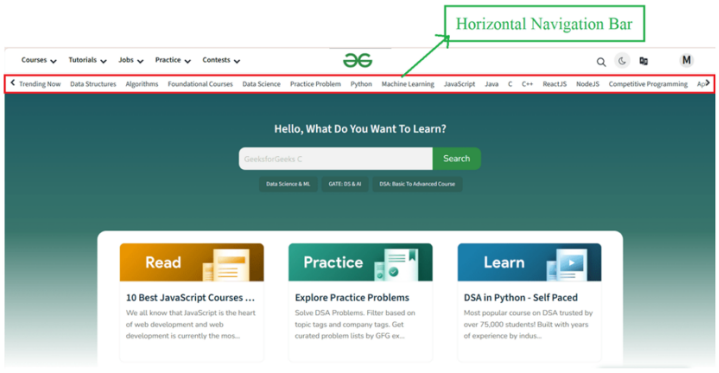


Figure 2.1 Information Architecture Reference
Source: https://www.geeksforgeeks.org/what-is-information-architecture-in-ux-design/

2.1.1.3 Navigation System

The navigation system is the visual representation of a website's information architecture. Once the content structure is made, the next step is to design a user-friendly interface that aligns seamlessly with it. A well-designed navigation system should maintain consistency across all pages, ensuring users can easily find and access information. The visual structure of the navigation system is required to have consistent elements from page to page (Landa, 2019, p. 337).



Horizontal Navigation Bar GFG

Figure 2.2 Navigation System Example
Source: https://www.geeksforgeeks.org/websites-apps/navigation-element-in-web-design/

2.1.1.4 Home Page

The home page is the main gateway to a website and serves as its central navigation. The home page remains essential in providing key navigation and defining the site's overall appearance and experience. To ensure accessibility, the most important information should be immediately visible without having to do scrolling (Landa, 2019, p. 337).

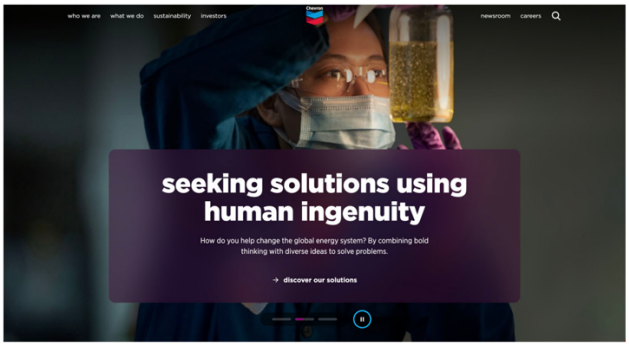


Figure 2.3 Homepage Example
Source: https://www.nngroup.com/articles/homepage-design-principles/

An effective educational website on English gerunds requires clear and relevant content, organized in a user-focused structure. A well-planned information architecture and consistent navigation system support easy access and smooth browsing. The home page should highlight key content clearly without scrolling, serving as the main entry point for users.

2.1.3 Principles in Website Design

As stated by the Interaction Design Foundation (2016), design principles serve as flexible guidelines, biases, and considerations that designers use to guide their decisions. Their primary goal is to help create intuitive and enjoyable user experiences. There are key principles the designer uses to create a website for the purpose of educational media:

2.1.3.1 User Interface

User Interface refers to the visual representation and interactive components of a digital product that users directly engage with. This includes everything users see and interact with. The user interface is the way it communicates with people. It's a key part of making sure the experience is easy to use and visually appealing (Jones, 2022, p.10).

A. User Interface Components

User interface itself is composed of elements such as grids, layouts, colors, animations, micro-interactions, and elements enhance the visual appeal and user experience (Malewicz et al., 2020, p. 14-16).

1. Grid or Layout

Jones (2022, p. 89) explained that a grid system is an essential element in User Interface design, it is made up of invisible lines and columns that organize design components in a structured and tidy way. This system gives consistent spacing and helps create interfaces that are clear and easy to use. One of the most used grids is the 12-column grid. As screen sizes change, especially on mobile devices, the grid system adjusts by decreasing the number of columns (such as to four or two).

Figure 2.4 Four Columns Grid
Source: https://design.metlife.com/foundations/core-guidance/layout-and-the-grid/

A. Gutters

Jones (2022, p. 88) explained that gutters are the spaces between columns in a grid layout. These gaps help differentiate various content areas, improving the spacing of the design. Their size can be adjusted to suit specific layout needs. Gutters are important for maintaining a clear structure.

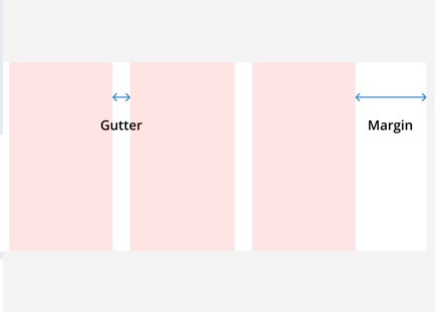


Figure 2.5 Margin & Gutter
Source: https://www.uiprep.com

B. Margin

Jones (2022, p. 89) explained that margins are the blank areas along the left and right edges of a grid system. They act as a frame for the layout, helping to center the

content and prevent it from reaching the outer edges of the screen or page. By doing so, margins create a defined boundary that keeps the overall design organized.

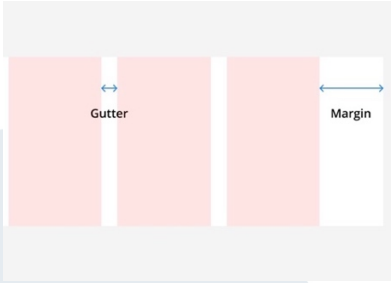


Figure 2.6 Margin & Gutter
Source: https://www.uiprep.com

In conclusion, using a well-structured grid system with appropriate gutters and margins is essential in user interface design to create layouts that are clear, organized, and easy to navigate. By ensuring consistent spacing, centering content effectively, and adapting to various screen sizes, designers can maintain a visually balanced interface that enhances usability and provides a better user experience overall (Jones, 2022, p. 88-89).

2. Objects

UI design tools operate by manipulating vector shapes. This means that the shapes are defined by numerical values, allowing them to be resized or stretched without losing quality. The parameters of these shapes are essentially numbers that create new shapes based on the specified criteria each time they are adjusted. And when designing interfaces, a significant portion of the process involves arranging shapes or elements on the screen. According to Malewicz et al. (2020, p. 77-93), there are the various basics used as the UI ingredients:

A. Border-radius

A border-radius is essentially a numerical value, like width and height, and is measured in points. The higher the number, the more rounded the corners of the shape will be (Malewicz et al., 2020, p. 84).

Figure 2.7 Border Radius
Source: Malewicz et al. (2020)

B. Border

The border is a line that surrounds an object. It can be positioned in three ways: inside the object (inner border), outside the object (outer border), or centered around the object's edges (centered border) (Malewicz et al., 2020, p. 86).

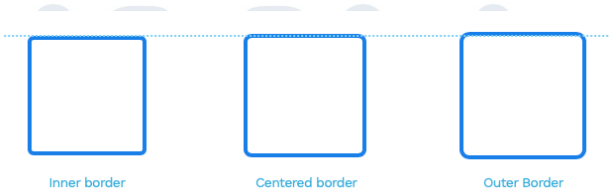


Figure 2.8 Border
Source: Malewicz et al. (2020)

The border can vary in weight (width) and can be styled as a dashed or dotted line. It can also be filled with a solid color or a gradient. The ends of the border can be open, flat, or rounded, while the joints where the borders meet can be sharp, rounded, or angled (Malewicz et al., 2020, p. 87).

C. Drop Shadow

A natural-looking shadow is a design element that can have a significant impact. To achieve it, it's important to use a shadow color derived from the primary color. A harsh contrast will make the shadow seem unnatural. In real life, shadows often vary in shade and tone, and by doing so, the shadow will appear more realistic and harmonious. (Malewicz et al., 2020, p. 90).

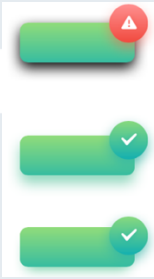


Figure 2.9 Drop Shadow
Source: Malewicz et al. (2020)

D. Gaussian Blur

Gaussian blur is a visual effect that evenly distributes blur in all directions, resulting in a smooth and soft appearance. The main factor that influences the intensity of the effect is the radius value; a larger radius produces a stronger and more noticeable blur. This effect is commonly used in user interface (UI) design due to its flexibility. It can be applied in various ways, such as creating smooth transitions between screens or adding depth by blurring background elements, which helps to highlight the main content. (Malewicz et al., 2020, p. 92).

In conclusion, UI design tools rely on vector shapes defined by numerical values, allowing for flexible resizing without loss of quality. Key elements such as border-radius, borders, drop shadows, and Gaussian blur are

fundamental in creating effective and visually appealing interfaces. These elements not only shape the appearance of objects but also enhance usability by adding clarity, depth, and emphasis to different parts of the design. Understanding and applying these basic UI ingredients thoughtfully is essential for developing user interfaces that are both functional and aesthetically pleasing (Malewicz et al., 2020, p. 77-93).

3. Icons

An icon is a small symbol that represents a specific action. Typically, it is a simplified symbolization of familiar objects or shapes, designed to be easily recognized and understood by users (Malewicz et al., 2020, p. 168)

Figure 2.10 Icons
Source: Malewicz et al. (2020)

Icons help set the tone, making it more user-friendly. Adding a label next to an icon makes it easier for users to immediately understand its function. In conclusion, icons play an important role in user interface design by representing actions through simple and recognizable symbols, making interfaces more intuitive and user-friendly. When paired with clear labels, icons become even more effective, as users can quickly understand their function and navigate the interface with ease.

4. Buttons

A button is an interactive element that performs an action when clicked, based on the label it displays. Buttons are important parts of any website; it is important to design them thoughtfully. The main rule in button design is to make sure the button is clearly visible and easy to identify, so users won't confuse it with other elements (Malewicz et al., 2020, p. 178).

Figure 2.11 Buttons
Source: Malewicz et al. (2020)

5. Cards

Cards are widely used to present content in an interface, often displaying products, information, or actions. A card typically serves as a preview of a full-detail page that users can access by clicking or tapping. It may include text, buttons, icons, and images to help users quickly understand (Malewicz et al., 2020, p. 204).

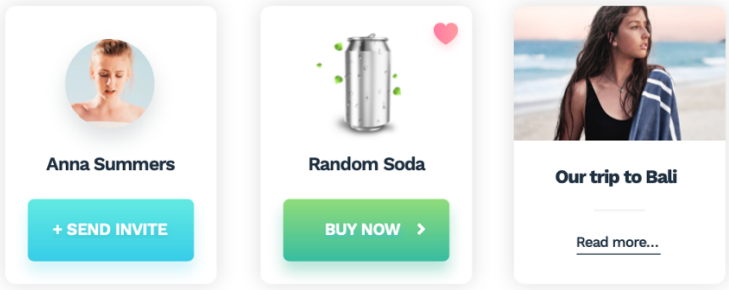


Figure 2.12 Cards
Source: Malewicz et al. (2020)

Cards are often arranged in horizontal or vertical scrolling carousels, stacked on top of each other, or displayed in a grid layout. The grid can have uniform card heights for consistency

or follow a "masonry" style, where cards vary in height but still align within columns for a more dynamic look.

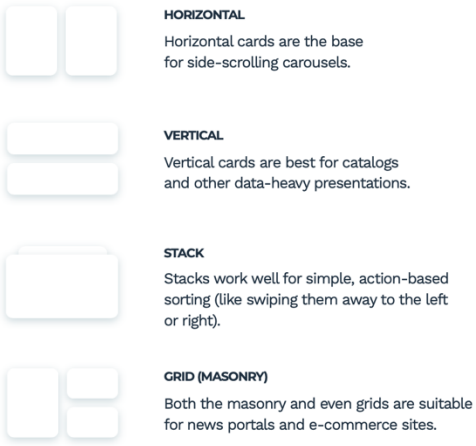


Figure 2.13 Cards Display on Websites
Source: Malewicz et al. (2020)

The layout and hierarchy of a card play a crucial role in how quickly and easily users can understand its purpose and take action. A well-structured card enhances precision, guiding users toward the most important information briefly.

In conclusion, a well-designed user interface (UI) relies on several key visual and structural elements to enhance usability and clarity. The grid layout, as explained by Jones (2022), organizes content using invisible columns, gutters, and margins to maintain structure and spacing, adapting to various screen sizes. UI objects such as border-radius, borders, shadows, and Gaussian blur are defined by numerical values and adjusted to enhance visual appeal and hierarchy (Malewicz et al., 2020). Additionally, elements like icons simplify communication through familiar symbols, while buttons act as clear interactive tools for user actions. Cards serve as modular content containers that often preview more detailed information, and their layout significantly influences user engagement and comprehension. Together, these components form

the foundation of effective UI design, ensuring a user-friendly and visually consistent experience.

B. User Interface Guidelines

According to the website of Interaction Design Foundation (2025), Jakob Nielsen and Rolf Molich developed ten key guidelines for user interface design. These principles serve as a guide for the author. The ten guidelines are as follows:

1. Visibility of System Status

System operations should be clearly visible to users on the screen. The system's status must be communicated in a straightforward manner, allowing users to quickly understand what is happening. This helps them determine the appropriate actions to take based on the current state of the interface (Interaction Design Foundation's Website, 2025).

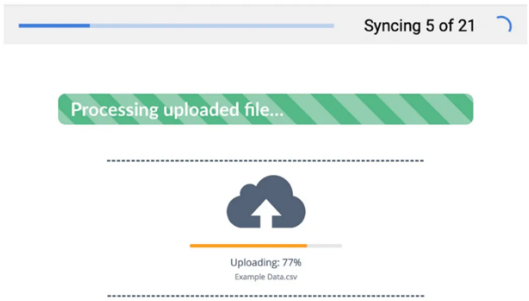


Figure 2.14 Status Update Example
Source: https://medium.com/nyc-design/1-visibility-of-system-status-with-examples

2. System Match to the Real World

Designers should use language and concepts that are familiar to the intended users. Presenting content in an order that mirrors real world experiences helps reduce users' effort and makes the interface easier. Using recognizable terms and visuals from

everyday life also helps prevent misunderstandings (Interaction Design Foundation's Website, 2025).

Figure 2.15 System Match Icons Example
Source: https://medium.com/p/961ceea385a0

3. User Control and Freedom

An interface should be designed to tolerate user errors by allowing users to easily correct their actions. This includes features such as undo and redo, enabling users to reverse steps when needed. For instance, users should be able to return to content they accidentally skipped or not fully understood, ensuring a smoother experience (Interaction Design Foundation's Website, 2025).

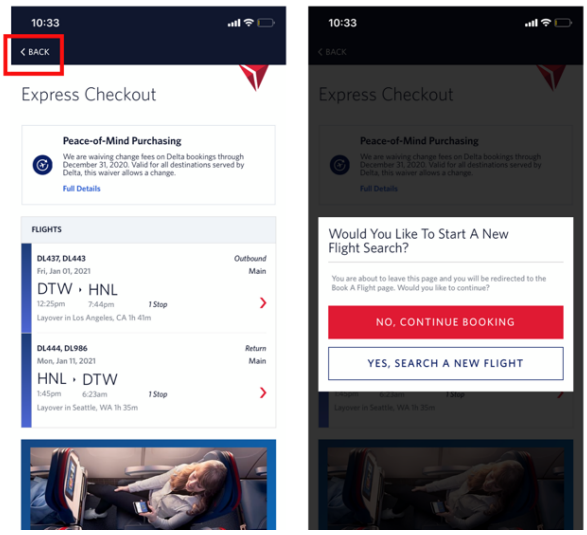


Figure 2.16 User Control Example
Source: https://www.nngroup.com/articles/user-control-and-freedom/

4. Consistency and Standards

Graphic elements and terminology must remain consistent throughout the website. An icon or visual used to represent a specific concept on one page should not be used to signify something different on another page. This consistency helps prevent user confusion (Interaction Design Foundation's Website, 2025).

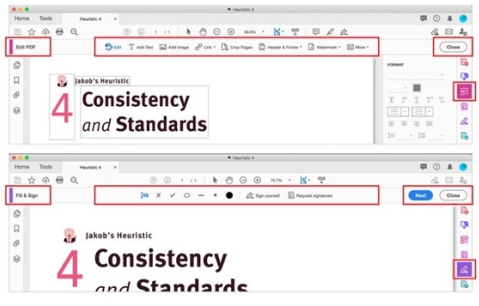


Figure 2.17 Consistency Example
Source: https://www.nngroup.com/articles/consistency-and-standards/

5. Error Prevention

Designers should aim to minimize the possibility of user errors by being proactive and identifying potential problem areas. Since users may not always have the skills to detect or fix mistakes, it's important to prevent errors before they occur. This can be done by reviewing planned features, identifying those that might cause confusion or mistakes (Interaction Design Foundation's Website, 2025).

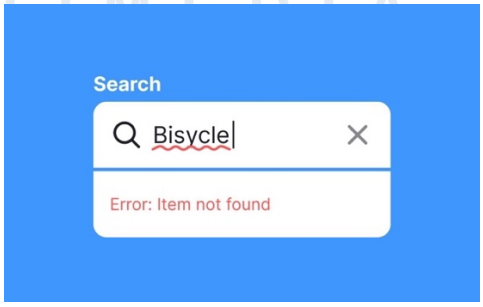


Figure 2.18 Error Prevention Example
Source: https://uxcel.com/c/3731

6. Recognition rather than Recall

Because human's memory is rather short-term, it's better for interfaces to help users recognize information instead of making them recall it. Recognition is easier because users can rely on visual clues. To support this, designers can present clear options from which users can select, helping them quickly identify the action or information they need (Interaction Design Foundation's Website, 2025).

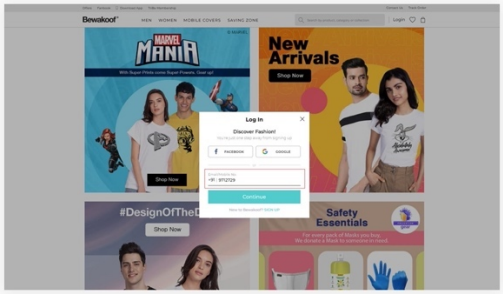


Figure 2.19 Recognition Example
Source: https://medium.com/p/eb8b84fb04c6

7. Flexibility and Efficiency of Use

Users prefer fewer steps to navigate a website. This can be done by using shortcuts like abbreviations, function keys, hidden commands, or macros. Actions that users perform often should be easy to find and adjusted to their needs. For example, if users need to click "Back" on a page, make the "Back" button large and clear, and remove any unnecessary buttons to avoid distractions (Interaction Design Foundation's Website, 2025).

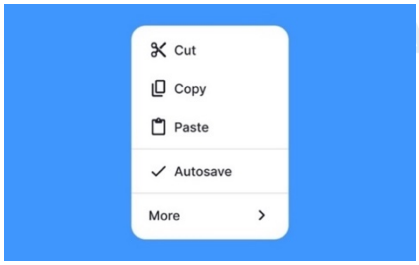


Figure 2.20 Flexibility Example
Source: https://app.uxcel.com/lessons/usability-heuristics-270/flexibility-and-efficiency

8. Aesthetic and Minimalist Design

The interface should show only the essential and relevant elements. Minimizing clutter and unnecessary information helps focus the user's limited attention on what matters most. A clean design reduces visual distractions, enabling users to reach their goals quicker and easier (Interaction Design Foundation's Website, 2025).

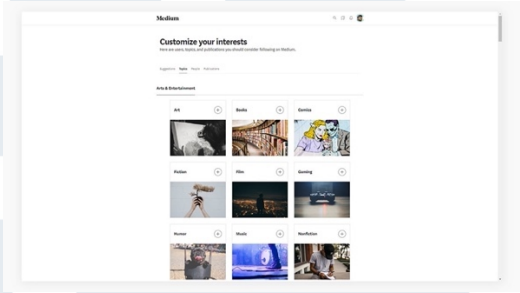


Figure 2.21 Minimalistic Design Example
Source: https://medium.com/p/42f904b8e0c0

9. Help Users Recognize, Diagnose and Recover from Errors

Designers should assume that users may not be familiar with technical terms. All messages, including error messages, should be written in simple, easy-to-understand language. When an error occurs, the message should be clearly visible and explain what went wrong. It should also guide the user on what to do next to fix the issue. For example, highlighting a missed field and explaining how to complete it (Interaction Design Foundation's Website, 2025).

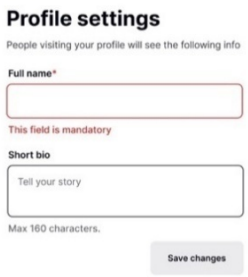


Figure 2.22 Recognize Errors Example
Source: https://uxcel.com/c/6349

10. Help and Documentation

Make sure help is easy to find and available for users. The help provided should directly relate to the task they are working on and offer instructions to guide them through any problems. While the goal is for users to complete tasks without needing extra help, having clear and accessible documentation can be useful when more detailed support is required (Interaction Design Foundation's Website, 2025).

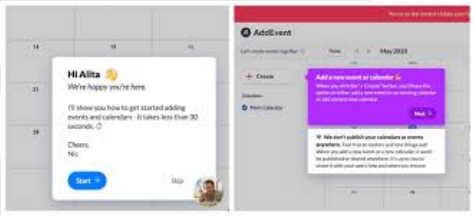


Figure 2.23 Help and Documentation Example
Source: https://www.nngroup.com/articles/help-and-documentation/

In conclusion, the ten usability guidelines developed by Jakob Nielsen and Rolf Molich serve as essential references for creating effective user interfaces. These guidelines emphasize the importance of clear system status, familiar language, user control, consistency, and error prevention to support a smooth user experience. They also highlight the need for recognition over recall, efficient navigation, minimalist design, helpful error messages, and accessible documentation. Applying these guidelines ensures that interfaces are user-centered, intuitive, and supportive of users' goals, enhancing usability and satisfaction for users (Interaction Design Foundation, 2025).

C. Atomic Design in User Interace

Atomic design is a method that consists of five structured stages, which collaborate to build user interface design systems in a more organized and systematic way (Frost, 2016, p. 42-64).

1. Atoms

Just like atoms are the basic parts that make up everything in the physical world, interface atoms are the simplest elements that build user interfaces. These include basic HTML elements such as labels, input fields, and buttons, which cannot be divided further without losing their function. In nature, each atom has unique traits, which affect how they are used. In the same way, interface atoms have their own properties, such as image size or text style, which influence how they should be used in a design system. In a pattern library, atoms show the basic styles of a design, which can be useful as a reference. But like real atoms, interface atoms are most meaningful when used together as part of a larger system (Frost, 2016, p. 43-44). This approach will be applied by the author in creating and designing the visual assets required to build an interface that is visually appealing and suitable for the target users.

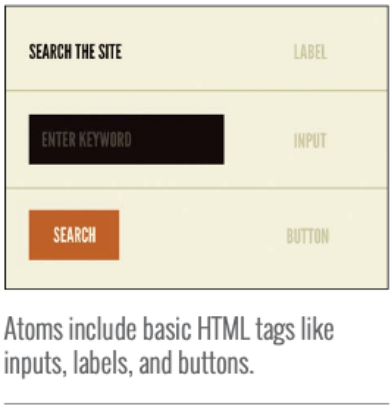


Figure 2.24 Atoms Example
Source: Frost (2016)

2. Molecules

In chemistry, molecules are formed by combining atoms, resulting in new substances with distinct properties. For example, both water and hydrogen peroxide are made from hydrogen and oxygen atoms, yet they behave very differently due to how those

atoms are arranged. In the same way, user interface molecules are basic combinations of interface elements that work together as a functional group. While each element (or "atom") serves a basic role on its own, their combination gives them meaning and interactivity: for instance, in a search form molecule, the label describes the purpose of the input, and the button submits the form. This approach turns abstract elements into useful, context-driven components that can be reused wherever similar functionality is needed. Although grouping UI elements has always been part of interface design, atomic design formally defines this step to emphasize its importance. This not only makes the design easier to understand and test, but also improves reusability and consistency across an entire system, helping teams build scalable and maintainable interfaces (Frost, 2016, p. 44-45). The author finds this concept particularly helpful in understanding how small interface components can be intentionally combined to create more functional and user-friendly design.

A search form molecule is composed of a label atom, input atom, and button atom.

Figure 2.25 Molecules Example
Source: Frost (2016)

3. Organisms

Organisms are more complex user interface components made up of groups of atoms, molecules, or even other organisms. These organisms function as distinct sections within an interface. For example, a search form, previously described as a molecule, can be placed within a header, which then becomes a header organism.

Although the header is a single section, it is composed of various smaller components, each with its own specific role and function. Organisms can include a mix of different molecule types, such as a logo image, a primary navigation menu, and a search form, all working together to form a complete header. Organisms show how individual elements work together in practice and serve as reusable design patterns. For instance, a product grid organism can be reused in various parts of a site, such as category pages, search result pages, or sections displaying related products, making the interface more consistent and efficient to manage (Frost, 2016, p. 45-46). By using this structure, the author can build interfaces that are easier to scale and update, which is valuable for maintaining consistency.

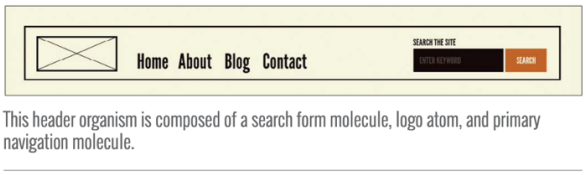


Figure 2.26 Organisms Example
Source: Frost (2016)

4. Template

Templates are page-level structures that organize components into a layout and define the overall content framework of a design. Continuing from the previous example, the header organism can be placed within a homepage template to show how different parts of the interface work together as a whole. The homepage template presents various UI components, such as the header, content sections, and product grids, functioning in unison, providing real-world context for the more abstract molecules and organisms. In a design system, it is essential to show how individual components come together within a layout, as this demonstrates the system's usability. Another important function of templates is to emphasize the structural layout of content rather than its final

version. Because content in real interfaces can change frequently, templates help guide how components should adapt by specifying things like image dimensions or ideal character lengths for headings and text. This ensures that the design remains consistent, flexible, and functional regardless of the content it holds (Frost, 2016, p. 48-50). The author views templates as a practical reference when building future projects, as they provide a clear framework for arranging elements.

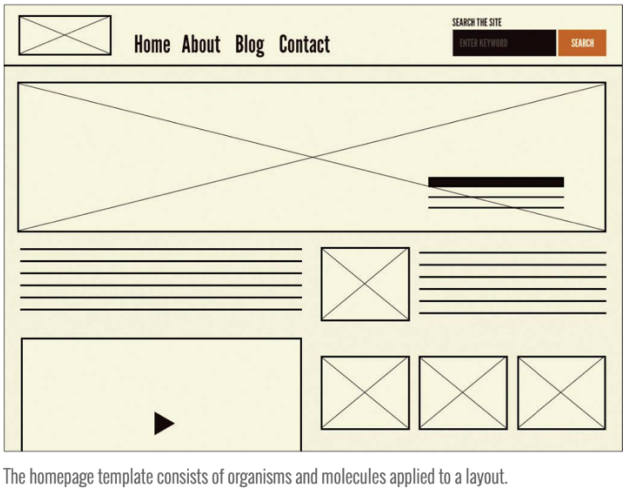


Figure 2.27 Templates Example
Source: Frost (2016)

5. Pages

Pages are specific examples of templates that show how a user interface appears when filled with real content like text, images, and media. This stage is the most concrete in atomic design, as it reflects what users will actually see and interact with. Pages are also used to test how well the design system works when real content is applied. If issues are found, earlier components such as molecules, organisms, or templates can be adjusted. Pages allow designers to consider variations in content, such as differences in user roles or the length of text, helping ensure the design system remains adaptable and consistent in various situations (Frost, 2016, p. 51-

54). The author sees pages as a valuable tool for checking the practicality of a design system. By using pages, the author is able to better evaluate how well the overall structure responds to real-world scenarios and make necessary improvements early in the design process.

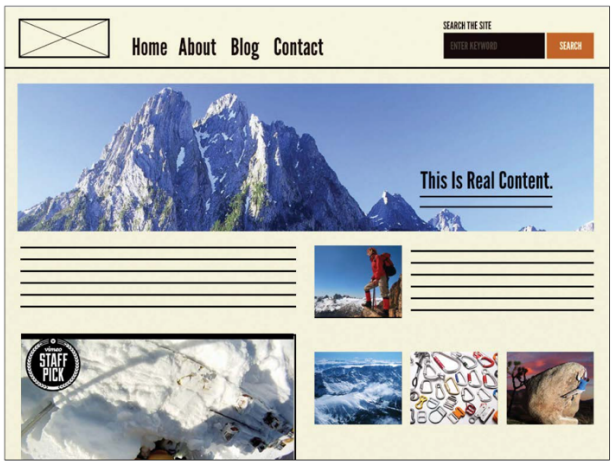


Figure 2.28 Pages Example
Source: Frost (2016)

In conclusion, atomic design is a method of building user interfaces by organizing elements into five levels: atoms, molecules, organisms, templates, and pages. Atoms are the basic UI elements like buttons or labels. Molecules are simple combinations of atoms that work together, such as a search form. Organisms are more complex components that group molecules and atoms into functional sections like headers. Templates arrange these components into structured layouts, guiding content placement and maintaining design consistency. Finally, pages show the actual interface filled with real content, allowing designers to test how the design works in real-world scenarios. This structured approach helps create scalable, reusable, and user-friendly interfaces (Frost, 2016).

2.1.3.2 User Experience

According to Jones (2022, p. 12), User Experience refers to the full journey a user takes when using the website, starting from their first interaction to the end. It covers various aspects such as branding, ease of use, functionality, and overall user satisfaction. Unlike User Interface, which focuses on the visual and interactive elements users see and touch, UX centers on the user's overall feelings and experience throughout their interaction with the product. Chipman (2022, p. 12-13) also states that User experience (UX) has evolved alongside improvements in user interface (UI) design. As users began interacting with the media, their experiences, whether positive, negative, or neutral, started to shape how they felt about those interactions. UX is a broad concept that includes all interactions a person has with a product or service. A list of what shapes UX is as follows:

A. User Persona

According to Jones (2022, p. 13-14). Personas are typically developed based on insights gathered from user interviews and may vary depending on different user roles or job functions. These personas help guide the design process by aligning it with the users' goals, behaviors, and pain points. To keep the design team focused on user needs, personas are often displayed in the workspace as a constant reference. When combined with empathy maps, UX personas become more effective, allowing designers to better understand the users' emotions, motivations, and challenges. This approach helps ensure that the user journey is considered throughout the design process, leading to more user-centered outcomes.

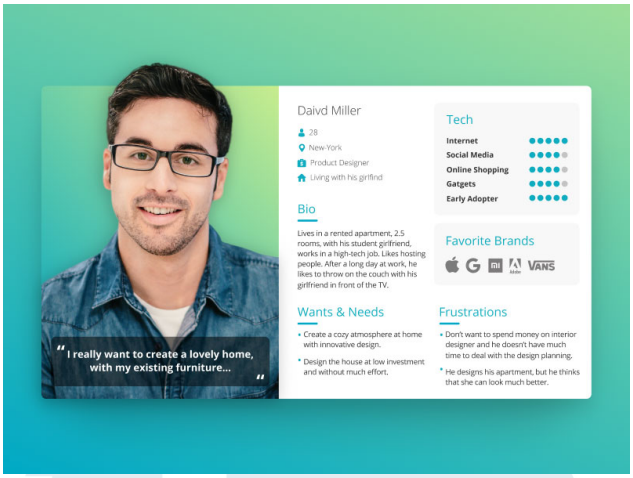


Figure 2.29 User Persona Example
Source: https://wpamelia.com/user-persona-template/

B. User Journey

A user journey represents the experience from the user's point of view, taking into account their motivations, expectations, and emotions. Its purpose is to foster empathy and support the creation of more user-focused designs that reflect how people genuinely interact with the media (Angrave, 2020, p. 27). In UX design, it is important to manage the full user journey by understanding the key factors that influence the overall experience. This includes participating in areas such as marketing and research to help shape how users interact with the media (Jones, 2022, p.11) In line with these ideas, the author will apply the user journey perspective throughout the design process to better understand user behavior and needs.

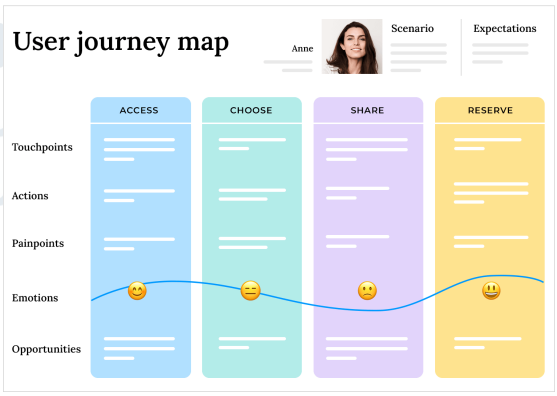


Figure 2.30 User Journey Example
Source: https://www.justinmind.com/ux-design/user-journey-map

C. User Flow

A User Flow is a visual diagram that illustrates the step-by-step journey a user takes to complete a specific task on a website. It maps out interactions, including each page, action, and decision point that the user encounters while navigating the site. This process helps to visualize how users engage with the website's structure and functions. By clearly outlining the user's path from the starting point to the desired outcome, the User Flow will provide valuable insights into the overall user experience. It allows designers to identify potential errors, improve navigation, and ensure that the layout creates an efficient user journey (Jones, 2022, p. 20). In conclusion, creating a detailed User Flow helps in designing a user-centered interface that aligns with the needs and expectations of the target.

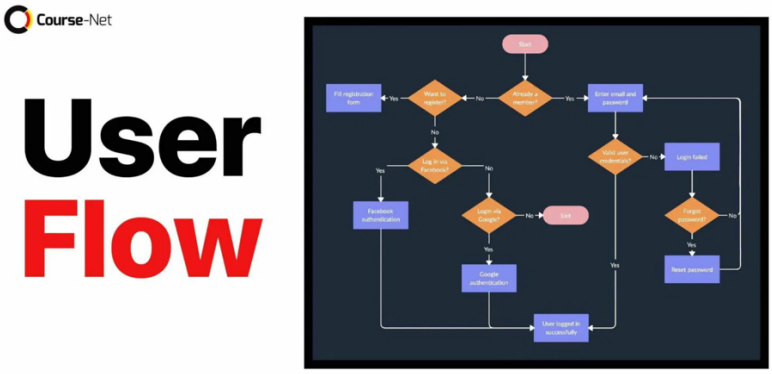


Figure 2.31 User Flow Example
Source: https://course-net.com/blog/apa-itu-user-flow/

D. UX Research

As part of the UX design process, part of designer's role is to decide which research method is most appropriate for answering specific questions (Chipman, 2022, p. 27-30). The UX research toolkit offers various techniques to help designers collect useful information from users:

1. Usability Testing

This process allows designers to evaluate how effectively users complete tasks, how quickly they do so, and what challenges

they may face along the way. It also helps measure user satisfaction, giving insight into how comfortable or enjoyable the experience is. These findings are useful for improving the design and ensuring it meets the needs of the users (Chipman, 2022, p. 27).

2. User Interviews

Conducting face-to-face interviews is an effective and straightforward way for designers to gather insights about what users expect from a media or to collect qualitative feedback on an existing one. When similar discussions are held with multiple participants at once, the method is referred to as a focus group (Chipman, 2022, p. 28).

3. Survey and Questionnaire

Questionnaires and surveys offer a flexible method to collect both qualitative and quantitative data. When used consistently, they help monitor how a product evolves during its development and after it is released (Chipman, 2022, p. 28).

4. Contextual Observation

Instead of conducting interviews in a controlled lab setting, designers observe users in their natural environments, such as at home or in the workplace. During this process, questions are asked to better understand users' behaviors, motivations, and the context in which they interact with a product (Chipman, 2022, p. 29).

In conclusion, to understand user needs and improve design effectiveness, several user research methods can be applied. Usability testing evaluates how easily and efficiently users can complete tasks, while also measuring their satisfaction with the experience. User interviews offer direct insights into user expectations and experiences, and when conducted in groups, they

become focus groups. Surveys and questionnaires help collect both qualitative and quantitative data throughout a product's development. Meanwhile, contextual observation involves studying users in their everyday environments to gain a deeper understanding of their behaviors and the context of use. These methods together provide valuable feedback for creating user-centered designs.

E. Wireframes

A Wireframe is a basic visual guide that represents the layout, structure, and key components of a page or screen within a website. It is intentionally simplified, focusing on the arrangement of elements such as navigation menus, buttons, text blocks, and content sections, without including visual design elements like colors, images, or detailed typography. The purpose of a wireframe is to serve as a blueprint for the user interface, allowing designers to focus on the functionality and flow of the user experience. (Jones, 2022, p. 21). By mapping out the structure early in the design process, wireframes help ensure that the content is organized effectively and that users can navigate the interface easily.

1. Low Fidelity

According to Jones (2022, p. 22), a low-fidelity wireframe refers to a simplified and minimal visual layout that serves to outline the base structure and functionality of a page. These wireframes are static, meaning they do not incorporate interactivity or animation. Their main purpose is to provide the first representation of content arrangement and user flow, allowing designers to focus on layout and information hierarchy before progressing to more detailed or interactive design stages. Creating a low fidelity before making the website design process is important because it acts as a base for the whole process.

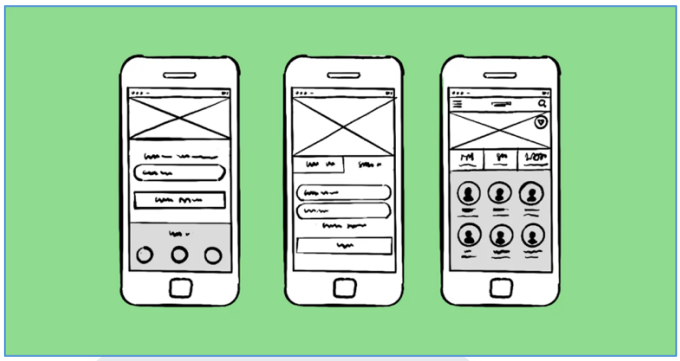


Figure 2.32 Low Fidelity Example
Source: https://arounda-agency.translate.goog/blog/ux-prototypes-low-fidelity-vs-high-fidelity

2. High Fidelity

A high-fidelity wireframe is a more detailed and clearer version of a wireframe (Jones, 2022, p. 22). It provides a visual representation that closely resembles the final product, featuring polished layouts, typography, and content arrangement. Despite this level of detail, these wireframes are still static and do not include interactive or clickable elements. This acts as a clearer vision before going into the actual website designing process.

Figure 2.33 High Fidelity Example
Source: https://www.andacademy.com/p/high-fidelity-wireframes

In conclusion, User Experience (UX) refers to the complete journey users take when interacting with a product, focusing on aspects such as usability, functionality, and satisfaction (Jones, 2022; Chipman, 2022). Key components of UX design include

developing user personas to understand user goals and behaviors, mapping the user journey to capture emotions and motivations, and creating a user flow to visualize each step-in task completion. UX research methods such as usability testing, interviews, surveys, and contextual observation provide valuable insights to guide design decisions. Additionally, wireframes serve as visual blueprints that help structure content and plan functionality early in the design process. Together, these elements ensure that the final product is user-centered, efficient, and aligned with user needs.

2.1.2 Typography in Website Design

In practice, website typography follows many of the same principles as print typography. Website typography plays a crucial role in both content and interactive elements. According to Landa (2019, p. 55–56), several key factors should be considered when selecting and implementing typography for a website:

2.1.2.1 Legibility

For optimal legibility on digital screens, the author should avoid using typefaces with thin strokes, as they can strain readability. Instead, selecting fonts with a thicker weight, especially for numbers, enhances clarity. Increasing the font size beyond typical print standards further improves text visibility. The intended typeface used for this design is sans-serif, as it will serve clarity along with creating a modern look on the website (Landa, 2019, p. 55).

2.1.2.2 Readability

To optimize readability on screens, the author should ensure strong contrast between text and background colors. Additionally, keeping line lengths shorter prevents strain on the reader. Breaking text into smaller parts rather than large stacks makes content more engaging and easier to process. Lastly, condensed type styles or overly tight spacing can interfere with readability. In this design, the author notes that it is crucial to use texts

as a part of explaining the material, but it should be ensured that the readability by the users is considered a priority (Landa, 2019, p. 55).

2.1.2.3 Voice and Branding

Choosing the right typeface can play a significant role in distinguishing a brand from other brands. The typeface serves as a visual identity. In the case of this design, the author chooses to convey the message of clean and simple strokes of texts. Giving it a clear clarity, helping users read the materials better (Landa, 2019, p. 56).

To conclude, typography in web design follows many of the same principles as print but must be adapted for digital readability and user interaction. According to Landa (2019), key considerations include legibility, where thicker, sans-serif fonts and larger sizes are preferred for better screen visibility. Readability is enhanced by strong contrast between text and background, shorter line lengths, and well-spaced, clearly structured text blocks. Additionally, voice and branding are influenced by typeface choices, as fonts help convey the site's identity. In this design, the author prioritizes clarity and simplicity to support both effective communication and user experience.

2.1.3 Color Theory

According to Malewicz et al. (2020, p. 95-97), color is important in design because it helps set the style, mood, and emotional vibe of a product, making it more memorable. When choosing colors, it's important to think about who the target users are, what message to send, and the feelings to evoke. Colors can be bright and lively or more neutral, like white, gray, or black. Our eyes see color through special proteins that respond to blue, green, and red light, which forms the basis of the RGB color system used in digital screens.

2.2.5.1 Contrast Levels

Elements of color such as brightness and saturation impact contrast, which in turn affects how easily content can be read. Greater

readability makes the message of the website more accessible to a broader audience (Malewicz et al., 2020. p. 98).

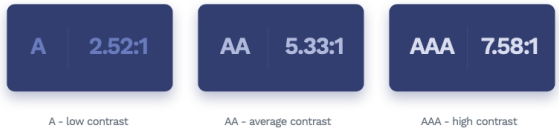


Figure 2.34 Color Contrast
Source: Malewicz et al. (2020)

When designing interface, it is best to ensure that key UI components (buttons, forms, and important text) meet at least a 4.5:1 contrast ratio (also known as AA standard) for optimal clarity (Malewicz et al., 2020. p. 98).

2.2.5.2 Color Psychology

According to Malewicz et al. (2020, p. 95), colors are deeply connected to human's emotions, so choosing a color scheme based solely on appearance isn't enough. Research shows that over 90% of a person's preference for a product is influenced by its color scheme. Therefore, when selecting colors, it's important to consider the target audience, the message, and the specific emotions intended users are desired to feel when interacting with the design. Below is a list of colors and their commonly recognized psychological connections with users, according to Malewicz (2020):

A. Blue

Blue is commonly linked to calmness and relaxation. It often represents trust, professionalism, experience, and wisdom. Statistically, blue is the most preferred color among both men and women. As a result, including blue tones in design is generally a safe choice, as it rarely triggers negative emotions in users (Malewicz et al., 2020. p. 100).

Figure 2.35 Blue Color Palette
Source: Malewicz et al. (2020)

B. Red

Red is known to increase heart rate and stimulate adrenaline production more than other hues. As a natural warning color, it effectively captures attention and evokes strong reactions. However, due to its intense and often negative connotations, red should be used thoughtfully. In user interfaces, red commonly signifies errors or warnings (Malewicz et al., 2020. p. 102).

Figure 2.36 Red Color Palette
Source: Malewicz et al. (2020)

C. Yellow

Yellow is primarily associated with positive emotions, symbolizing sunlight, warmth, and gold. Due to these good associations, it is widely used to convey enthusiasm, confidence, happiness, optimism, and a sense of fun. In digital design, lighter shades of yellow is typically used for backgrounds to create a cheerful and inviting mood. In contrast, darker and more intense yellows are effective as accent color, particularly in areas where directing the user's attention is needed (Malewicz et al., 2020. p. 103).

Figure 2.37 Yellow Color Palette
Source: Malewicz et al. (2020)

D. Purple

Purple is traditionally associated with luxury, power, wealth, and secrecy, meanings largely originated in European culture. It also conveys professionalism, wisdom, trust, high quality, and modernity. Due to its versatility, purple is considered a designer-friendly color, as it pairs well with a variety of hues such as blue, green, orange, and yellow. In many cases, purple is most effective when used as an element paired within a broader color palette (Malewicz et al., 2020. p. 106).

Figure 2.38 Purple Color Palette
Source: Malewicz et al. (2020)

E. Black

Black is a serious, formal, and emotionally neutral color. It's often linked to elegance, minimalism, professionalism, and luxury. However, it can also feel exclusive or even depressing if overused. In display design, pure black (#000000) should be used sparingly, or not at all. Since it's not found in nature, our eyes aren't used to seeing it, and it can look harsh or unnatural, especially due to its high contrast with other colors. It's better to use very dark shades of grey instead (Malewicz et al., 2020. p. 107).

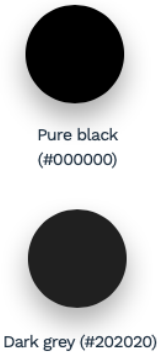


Figure 2.39 Black Color Usage
Source: Malewicz et al. (2020)

F. White

White is often linked to minimalism and is great for creating clean, open designs. As the brightest color, it represents clarity. In design, white is tied to the concept of "white space", the empty areas that help organize content and create visual hierarchy (Malewicz et al., 2020. p. 108).

In conclusion, color plays a vital role in digital design by shaping a product's style, mood, and emotional impact (Malewicz et al., 2020). Effective use of color depends on understanding the target audience, the message, and the feelings intended to be evoked. Designers must consider contrast levels to ensure readability and accessibility, aiming for a minimum 4.5:1 contrast ratio for key elements. Additionally, color psychology reveals that specific colors trigger certain emotional responses: blue conveys trust and calm, red draws attention but signals warning, yellow evokes optimism, purple suggests luxury and creativity, black offers elegance but can feel harsh, and white promotes clarity and minimalism. These insights guide the author in choosing color schemes that support both function and user experience.

2.1.4 Illustration in Website Design

The visual style of illustrations can range from realistic to cartoonish, depending on its theme. It's important for the author to choose a

style that suits the target audience (Malewicz et al., 2020, p. 324). Some commonly used styles in games include:

A. Flat Illustration

According to Interaction Design Foundation's Websie (2025), flat design is a visual style that does not include details and focuses on two-dimensional imagery. It typically uses simple geometric shapes and solid colors. To make the design more dynamic, experiment with various shapes is allowed. This style is commonly found in icons, logos, banners, and other digital visuals.

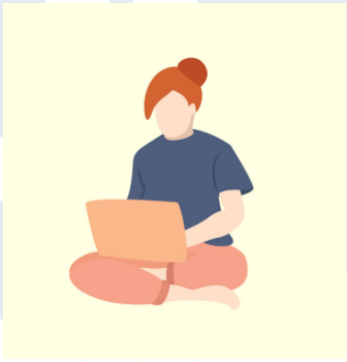


Figure 2.40 Flat Illustration
Source: https://www.creativefabrica.com/product/flat-illustration-of-human-vector/

B. Cartoon Illustration

Cartoon illustration is a simplified and iconic visual style that focuses on abstraction and exaggeration. According to McCloud (1993, p. 5-7), this form allows for stronger audience identification, as the simplified characters function as “masks” onto which viewers can project themselves. As a result, this technique enhances the relatability and emotional impact of a narrative, even when the imagery departs from realism.

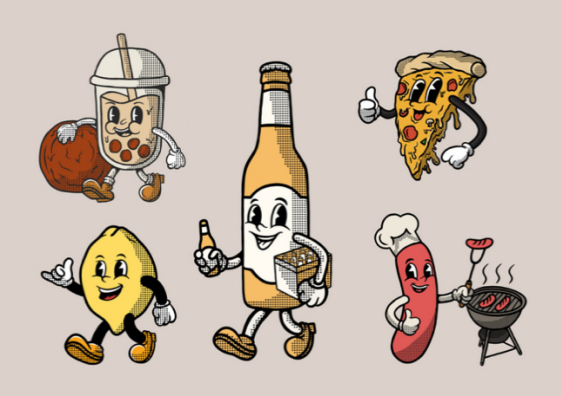


Figure 2.41 Flat Illustration
Source: https://www.vectorstock.com/royalty-free-vector/retro-cartoon-mascot-set-vector-47328214

The visual style of illustrations plays a key role in engaging the target audience and can range from realistic to cartoonish, depending on the design's purpose. Two common styles are flat illustration and cartoon illustration. Flat illustration uses simple, two-dimensional shapes and solid colors without detailed textures, making it ideal for icons, banners, and other digital visuals. Cartoon illustration, on the other hand, relies on abstraction and exaggeration to create simplified characters that audiences can easily relate to. As noted by McCloud (1993), this style acts as a "mask," allowing viewers to project themselves onto the characters and strengthening emotional connection.

2.2 Learning English Grammar

English grammar is a structured system of rules that determine how words, phrases, and clauses are arranged to create meaningful sentences. These rules help with how sentences are structured, how words change form, and how ideas are built into full sentences, making it easier to share thoughts clearly. Grammar is the foundation that helps both speaking and writing feel organized and precise. Today, many linguists see grammar not just as a fixed list of rules but as something that changes and adapts based on how humans actually use language and what we need to communicate (Pullum et al., 2002, p. 3; Larsen-Freeman, 2015, p. 3-7).

Research shows that mixing direct teaching with hands-on practice makes learning grammar stick better. When students get to use what they learn in

real situations, they tend to remember it longer. Also, using digital tools and fun, interactive methods in classes has been shown to boost student interest and help them remember grammar concepts more effectively (Godwin-Jones, 2018).

2.2.1 Gerund

A gerund is a form of a verb that ends in -ing and works like a noun in a sentence. Although it's based on a verb, a gerund acts like a noun, which means it acts as the subject, the object, the object of a preposition, or a subject complement (Larsen-Freeman et al., 2015, p. 433-440). Studies show that English learners, particularly learners whose first language isn't English, often find it difficult to tell apart gerunds, infinitives, and present participles. These forms look similar, but they play different roles in sentences, which can lead to mistakes in grammar, especially in speaking and writing (Swan, 2016, p. 219-222). This confusion can make it harder for learners to use correct grammar, particularly in active language skills like speaking and writing.

2.2.2 Learning Method

Learning preferences refer to the methods or approaches that students choose when engaging in learning activities. These preferences include various factors that can influence how learning takes place. For example, one student might prefer studying alone at home during the evening, while another might enjoy group work and studying only on campus. In this way, learning preferences provide insight into how students learn most effectively in their own situations (Hendriani et al., 2023, p. 854). The process of learning English for EFL students has evolved over time. Research highlights differences in learning methods used before, during, and after the Covid-19 pandemic.

A. F2F (Face to Face)

Before the Covid-19 pandemic, grammar lessons for EFL students were mainly taught in person. Teachers led the lessons, gave direct explanations, and provided immediate feedback. Students were familiar with

learning in a classroom setting through this direct interaction. Students may prefer face-to-face classrooms where learning materials are delivered through live interaction. This approach can make learning easier and may also help boost students' confidence and understanding (Hendriani et al., 2023, p. 855). This face-to-face teaching method with textbooks as the main source was the traditional teaching standard.

B. Virtual Learning

Virtual learning refers to educational experiences that take place in either synchronous or asynchronous formats using internet-connected devices like mobile phones or laptops. It allows students to learn anytime and anywhere by using various technological tools (Arkorful & Abaidoo, 2014, p. 397-410). In this setting, learners can study independently while still interacting with teachers and peers. During times of crisis, such as the pandemic, online platforms became essential, supporting features like video conferencing, discussion forums, recorded lectures, and instant feedback. Research by Ja'ashan (2020) reports that students showed a strong positive attitude toward online English learning. Benefits mentioned by students include feeling safer, more comfortable, saving money, and managing time better. However, challenges remain, such as limited interaction, less real-life English use, reduced teacher feedback, difficulty focusing, and poor internet access (Sevy-Biloon, 2021, 15-24).

C. Blended Learning

Blended learning is an approach that combines face-to-face teaching with online learning. It brings together different teaching methods, delivery modes, and learning styles to create a more flexible and effective system. This model allows students to learn through both direct classroom interaction and the use of technology, helping them stay engaged and improving learning outcomes. It supports learning by using various communication tools and digital resources, which can increase student satisfaction and achievement,

especially in learning subjects like English grammar (Hendriani et al., 2023, p. 855).

In conclusion, English grammar provides a structured system that helps organize language clearly in both speaking and writing. Gerunds, as one important aspect, often confuse EFL learners because of their similarity to other forms like infinitives and participles, making targeted practice essential. Research supports combining direct teaching with interactive methods to improve grammar learning and retention. Additionally, learning preferences and methods have evolved, shifting from traditional face-to-face teaching to virtual and blended learning approaches. Each method offers unique benefits, but integrating digital tools and flexible learning modes has proven effective in increasing student engagement and enhancing mastery of complex grammar topics such as gerunds.

2.3 Relevant Research

The author used relevant research is to support the study's topic. By reviewing these studies, the author can identify their strengths and weaknesses, apply useful ideas, and avoid making the same mistakes.

Table 2.1 Relevant Research

No.	Research Title	Author	Research Outcome	Novelty
1.	Gerund in English: A Morpho-Semantic Note for EFL Learners in Indonesia	Jufrizal and Lely Refnita	The study highlights the dual grammatical identity of gerunds and new justification for including detailed gerund instruction in curricula.	**The output:** The research provides a detailed morpho-semantic analysis of English gerunds. **The target:** Indonesian EFL (English as a Foreign Language) learners.
2.	Information and Communication Technology (ICT) in	Khoirul Anwar & Agus Wardhono	Developed an interactive grammar learning software	**The output:** Created a web-based grammar software tailored

	English Learning: through an Interactive Software-Website		accessible online for EFL learners.	for Indonesian university students. **The target:** University-level English Education students in Tuban and Gresik
3.	Interactive English Teaching and Learning Based on Mobile Application	Panji Rachmat Setiawan, Arbi Haza Nasution, Anggi Hanafia, Yudhi Arta, Rizdqi Akbar Ramadhan, Evizal Abdul Kadir.	Developed an Android-based app to help Indonesian high school students with English grammar, vocabulary, and speaking confidence.	**The output:** An app that introduced a chatbot-enhanced English learning to boost speaking skills. **The target:** Indonesian high school students.

Based on previous research, the author is able to use these studies as a reference to better understand and shape the content that will be delivered to the target audience. It helps ensuring that the material is relevant with the needs of the target. The use of interactive technology in learning the English language has significantly contributed to improving the quality of EFL (English as a Foreign Language) education in Indonesia. The studies also highlight the importance of delivering content in an informative and engaging way. Visual elements specifically designed for enhancing the learning experience for students also play an important role. Overall, the previous studies emphasize the effort of creating a learning media through the use of engaging and interactive technology, making it easier for learners to understand and apply in their everyday experiences.

Compared to the previous studies, the author focuses this research on designing an educational mobile website, specifically made for middle school students in Samarinda. While earlier studies focused on theoretical grammar analysis, software development for university students, or chatbot apps for high school speaking skills, this project offers a more practical and visual learning tool

through a mobile website. The difference lies in the design approach, user experience, and younger target audience.