

Graphic design and Usability in websites

Aya Atiya Mohamed Atiya

PHD Researcher in Graphic Faculty of Fine Arts, At Alexandria University

Hassan Mohamed Mohamed Abouelnaga

Professor, Department of graphic Designs - Faculty of Fine Arts -
Alexandria University

Abstract

Graphic design is a short picture and an alternative to a group of cultural and intellectual values, which turn into an optical meaning of many central expressions, and design include elements and technical symbols is a relationship that contains technical translation on a guidance stock for process functions of the user.

Research problem represented in

- What is the role of the graphic designer in how to implement usability on websites?
- What is the importance of graphic design in achieving usability on websites?
- What are the usable graphic processors in websites for addressed messages?

The importance of research focused on the importance of web design dealing with the user. How to achieve usability that supports and allows users to achieve their goals quickly, efficiently and easily, web design is an article within graphic design materials created. Keep technical and visual values at locations.

Research objectives

To shed light on the graphic designs that help and contribute to facilitating the browsing process on websites. Study of structural elements (design) for web pages. One of the most important results is the importance of graphical processors in usability at the site because it helps the user to achieve its goals quickly, efficiently and easily and recommends the research by adopting scientific institutions in expanding their application in the curriculum and inviting researchers to continue to carry out scientific experiments in the field

Keywords

User Experience, User Interface, Usability, Responsive Design, Homepage, User Research.

Introduction

Graphic design is a brief image, and an alternative to a set of cultural and intellectual values, which turns into a visual meaning for many central expressive connotations, and design, with its suggestive elements and artistic symbols, is a relationship that contains in its technical translation a guiding stock of practical functions of interest to the recipient as a permanent user of it.

The design imposes a clear control over the user through circulation and diffusion, where his sovereignty and continuity are achieved through continuous use.

Because of the importance of functional designs, which we can categorize into two types, the first is the design of application interfaces from software and websites, and the second is the design of icons. These designs have occupied a great position, and allocate large areas for them in the modern software industry that are specially made for home, personal or computer computers.

Technology is used in industries as well as for micro-electronic devices such as modern cellular phones and tablet computers of all kinds and shapes, as well as electronic games...etc. (ماجد، كمال الدين) (مجد، (2011)، ص 2)

The graphic design, including its symbols, has entered as a formative element among the constituent elements of all those previous applications, ranging from artistic sense and functional application in an integrated and homogeneous system that adds more beauty and value and also to break the functional inertia of those complex and complex industries.

1- The structural (design) elements of websites

Website pages consist of a set of structural elements, and the structure means the general structure of the page with all its visual and audio elements. Still images, animations, texts, and colors can be called visual, while video clips are called audio visual elements. The sound is called an audible element. The structural elements that the page contains on the website can be divided into: (حلمي، محمود مجد، (2007)، ص 55)

- Graphic elements: photographs, graphics, text, colors, backgrounds...etc.
- Electronic elements: hypertext, animation, audio, video (multimedia).

Below Show each:

1-1- Graphic Elements

1-1-1 Photographs and Graphics:

Images are the first vocabulary of the visual language, and an important component of web design. Sometimes they replace many pages of writing and are able to show the progress or failure

of a project quickly and efficiently. (فاطمة عبد القادر (٢٠٠٦)، ص١٣٥).
Graphics, shapes, and photographs are among the most important elements used in designing web pages. There is no web page devoid of photographs or graphics. These elements give vitality to the design and make it more attractive and interesting to the user, and the image has four main functions: (حلمي، محمود) (٢٠٠٧)، ص٨١

1-1-2 The text:

The text helps to increase the understanding and awareness of the advertising message of the website, as some studies have shown that relying only on images is not enough to teach concepts and principles that words play an important role in interpreting semantics and signs. When browsing the website, the user takes a peek, and if he does not find something that encourages him to continue inside the site and read the content in more depth, he leaves the site immediately (ماري، ميلهولون، (٢٠٠٣)، ص٣٠)

Web design experts have confirmed that reading a block of text on a computer screen takes 25% longer than reading the same text on a printed page, meaning that reading 75 words on a computer screen takes time, you can read 100 words on a printed page. Text in websites should not negatively affect usability so that the process of receiving messages becomes ineffective.

- Text Design Considerations for Websites:

- The size of the text that appears at one time on the computer screen of the site visitor, provided that the size of the letters is between 12_14, while avoiding black density and italic letters, and making sure not to use italic text too much because it negatively affects the readability. (ماجد، سالم تربيان، (٢٠٠٨)، ص٢٤٧)

- How easy it is for the user to obtain basic information without having to read the entire text. And how to divide the text into integrated sections. Some text design for websites also suggested some guidelines that must be adhered to in the text design of websites regarding the shape of the text block; They pointed out that: Whenever possible to put the text in the form of columns (Design Of Columnar Text), it was comfortable for the eye to read successive lines. The text can be used to remind the consumer of the product, and the slogan is a short phrase that is easy to remember and repeat, and expresses an idea or value. Or a goal characterized by stability, and a good slogan should be short and simple, easy to learn, memorize and remember, and not lose its value over time, and it should create a link in the consumer's mind between the commodity and its advantages.

1-1-3 Colors:

What we call color is the effect that waves of different frequencies of light have on our eyes.

Color is a property of light, and all things that appear to have a certain color are just surfaces that reflect or transmit color to an existing through light or in the presence of light that illuminates this or that thing, and when the light falls on something, part of that light is absorbed through the surface own one thing while the other is reversed. For example, we see something that appears red in white light because it reflects most of the red color and absorbs the rest of the colors in the color spectrum.

If all of the wavelengths of light are absorbed by something, it appears black, but if all wavelengths of light are reflected, then the thing appears white.

Black and white are not true colours, as the surface of black absorbs most and perhaps all of the light that falls on it. The white reflects all the light that falls on it. (عبد الحميد، شاکر، (٢٠٠٨)، ص١٣٠-١٣٩)

1-1-4 backgrounds:

The process of choosing the appropriate background (floor) that will contain the rest of the website design elements is a very important process, as it directly affects the readability of the website pages, and the color of the homogeneous background is a complementary and complementary factor to the shapes and other design elements on this background, for example. Changing the color of the floor while browsing the same site indicates the transition from one section to another within the site, and the unsuccessful selection of the background is responsible for the appearance of the site with unsuccessful images in terms of design distinction and effectiveness. It is not appropriate for the designer to use backgrounds that contain a defacement and graphics in order to impress the recipient and at the same time not receive the site's message, as these backgrounds greatly hinder the reading process and distract the receiver's attention.

(أبو النيل، مصطفى محمود، (٢٠٠٢)، ص١٦٨)

2- Electronic Elements

The enormous capabilities of the Internet represented in audio, image, hypertext, video and others, help to facilitate and simplify the information provided to the receiver of the message on the website, and this receiver can interact with the advertising message provided by the site at the same moment it is displayed and thus respond to any inquiries from the receiver via the Internet. However, this can only happen through the good design and

coordination of the elements of the site.

2-1 Hypertext:

Hypertext is defined as: a special type of text that is provided with links that allow the user to move to parts of text other than those he is viewing, whether these parts are in the same document or outside it in another document saved in a different place.

The hypertext provides the opportunity for us to save a set of texts with the ability to browse and move between them from time to time in the order we wish.

The nature of hypertext: the text becomes hypertext as soon as links are added to it. The function of the links here is to link between the different sites contained in the hypertext documents, the user only has to click with the mouse on the links. To do this task, a program called the Navigation Tool must be used. The browsing tools are designed to enable the user to read hypertext in a non-linear manner, which means that the user does not have to read regularly from start to finish. It is possible for the user to stop reading the open text in order to follow the path of a link that takes it to other places. (شفيق، حسنين، (٢٠٠٨)، ص٧٣)

2-2 the sound:

The sound plays an important role in the design of the website along with the image, and both are complementary to the other, and sometimes the sound is the important element in the success of the advertising message of the site.

The sound accompanying the website may be alongside the image, and both are a complementary element to the other, and sometimes the sound is the important element in the success of the site's advertising message.

The audio accompanying the Website may be in the form of a song, speech comment, Music Backward or Sound Effects.

Sound has a great ability to express the general atmosphere of the site through sound effects or through music. The sound attracts attention, facilitates memorization and enhances the image. Just as the colors affect and give the recipient of the advertising message on the site different psychological connotations, the sound is also influential, because the ear serves as a channel for imagination. "You have to use a very good sound and fit the design, or not at all," says designer Ann Memillan, a professional web animation animator.

2-3 animation:

The motion of animation is nothing but a fictitious process like cinema films. Animation is a series of still images displayed in a time sequence that leads to the illusion of motion. An animation is produced using a series of drawn frames, each frame of which represents a snapshot, and the clips are displayed at 24 frames per second. Thus, you need one minute, of which the animation is 1440 frames. (شفيق، حسنين، (٢٠٠٨)، ص ١٠١)

Animations give the website vitality, which increases the site's attractiveness. These animations can be as simple as moving text in or out of the screen and can be as complex as Walt Disney cartoons.

The website designer must take care not to place the animation in the middle of the page, because this affects the user's field of vision, and makes him not continue reading the text continuously as a result of his sense of movement, as it forces the user to pay attention to it as a result of the movement it contains. (ماجد، سالم) (تريان، (٢٠٠٨)، ص ٢٦٦)

2-4 the video:

There is no doubt that live video clips accompanied by sound are one of the most powerful and influential means in the interactive process, as it contains all the elements of text, image and sound in addition to movement.

The importance of video files in general stems from the fact that they are an embodiment of events, making the viewer coexist with the event as if it were one of its vocabulary. However, video files on the Internet suffer from slow communication, which reduces their importance in terms of survivors, and the large size of video files on the other hand. Otherwise, these two restrictions are receding. Little by little, according to the infrastructure of the Internet and the Information Super Highway, the speed of video delivery approaches the speed of television broadcasting. (حلمي، (محمود محمد، (٢٠٠٧)، ص١٢٦

3- The foundations of graphic design that achieve excellence and effectiveness for website pages

3-1 Simplicity and clarity:

It means the clarity of the components and the simplicity of its design elements on the site, and the site designer can achieve the elements of clarity and simplicity by avoiding confusion and directing visitors to clear and purposeful paths to ensure that they stay on the site as long as possible. By using an effective strategy to match words and images with each other, creating a complete view of the information that easily leads the browser to its destination. The simplicity and ease of use of the site makes the site familiar and uncomplicated for the user. Figure (1) shows that there is no clarity and visual sequence in the design to lead the path of the browser's eye, and the browser does not know where to start first, unlike Figure (2) in which clarity and simplicity are taken into account.

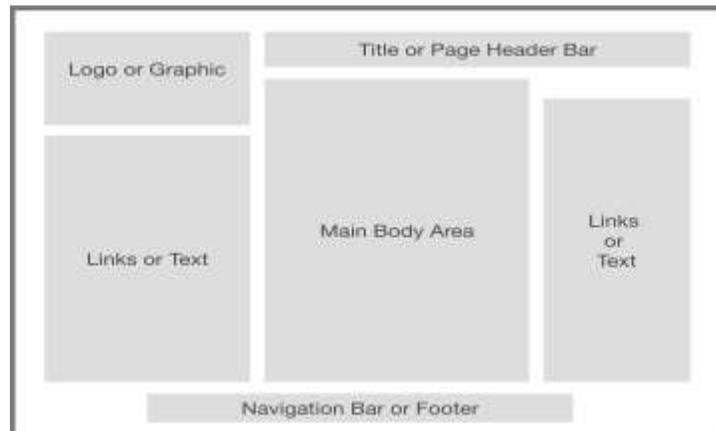


Figure (1) shows a model of a website page that does not take into account clarity and visual sequence

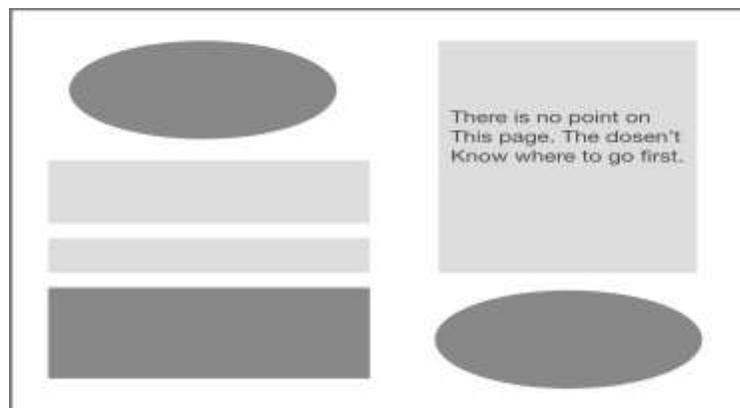


Figure (2) shows a model of a website page that takes into account clarity and visual sequence

The simplicity in the design should be reflected in the choice of background, as the crowding and noise in the backgrounds disturb other components and affect the ease and smoothness of reading in the pages of the site. (أبو النيل، مصطفى محمود، (٢٠٠٢)، ص٩٥).

3-2 contrast:

It is defined as avoiding the presence of similar elements in size, color and space adjacent to each other, because the similarity makes the user feel bored and want to get out of the site. The greater the contrast between the background colors of the page and the colors of the inscriptions, the easier it is to read. It is recommended that the background color be light and without contrast in its colors (gradations) and the text color is dark, because if the designer uses a background with contrasting colors, it will generate a kind of crowding and scattering, which leads to either To contrast with the colors of the inscriptions (text) that will be placed on that background. Or lead to a consensus that parts of the text become invisible. (Ann Navarro, 2001, p241)

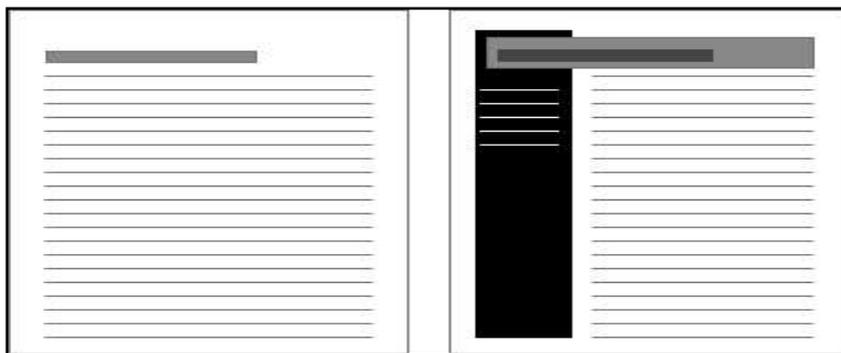


Figure (3) The page on the right shows the visual contrast, and the page on the left does not contain a strong contrast, so it is visually boring.

3-3 balance:

Balance means not to overburden one or more parts of the page with structural elements while another part or more of these elements is devoid of these elements. So that my design doesn't weigh on one side and the page becomes unbalanced. Figure (4), Figure (5)

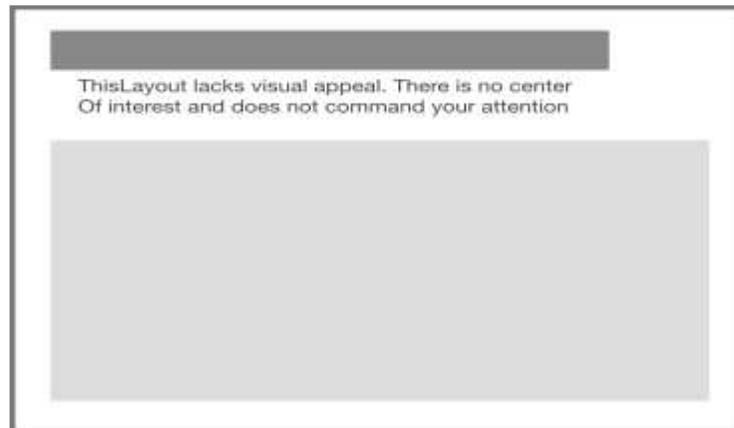


Figure (4) shows a model of a website page that observes the principle of balance

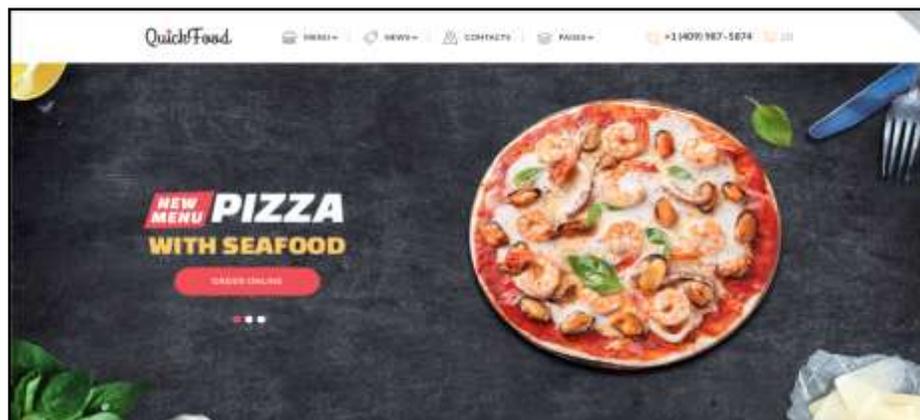


Figure (6) shows the home page of the Quick Food restaurant's website

3-4 Unity:

Unity is defined as the relationship between the visual elements, and the unit gives a sense of harmony through its organization between those elements. Pictures and texts that have common things such as color give a sense of one meaning. Among the elements that can be used to achieve unity across the page:

Color: It can achieve visual unity between different subjects, by repeating one or some of the colors or some of their degrees across the page. figure (6)

The unity of the design is achieved through (color, line, and shape) by repeating the color across the page, by installing some graphic sizes, using the same character family to comment on the graphics, and by presenting the site with its graphic forms similarly, which is the rectangular shape.

4- Principles of graphic design that achieve distinction and effectiveness for website pages

Design principles are a set of generally applicable laws, guidelines, human bias, and design considerations, all of which reflect the accumulated knowledge and experience of practitioners and researchers. It serves as a starting point for creating new designs to solve problems. Design principles typically bring together developments in all disciplines related to design, including the behavioral sciences, sociology, physics, and work environment.

According to William Ledwell, Kretina Holden, Jill Butler, authors of the book *Global Principles of Design*, *Principles of Design* aim to help designers find ways to enhance usability, perceptual impact, increase engagement, educate users, and make sound design decisions during projects. Careful selection and application of appropriate principles should increase the probability of success of the design. Although these principles have general applicability, the choice that applies to the project is usually left to the critical ability of the designer. In addition, the way in which the designer can apply each principle also depends largely on his ability and understanding of the context of the problems he has advocated solving. Therefore, applying these principles successfully takes into account the relentless skills in making judgment call to users' perceptions and potential actions traits of a designer who tends to improve with experience in the field.

To help designers get inspiration to implement a principle, "guidelines". Practical information on how to implement a principle comes into play. The design guideline eg, "The text must be easy to read" should be between a design principle eg, "The interface must be user friendly" and a standard or rule for its implementation eg: "background: white; font-color: black; font-size: 20px". Thus a design principle reflects a design philosophy or goal, while guidelines are intended to help designers understand how to implement a principle.

Visual design elements - font, shape, negative/white space, size, value, color and texture - a description of building shape for product aesthetics. On the other hand, design principles tell us how these elements can and should go together to achieve the best results. Many of the principles listed below are closely related and complement each other. (حلمي، محمود محمد، (٢٠٠٧)، ص٢٨٨).

4-1 Unity:

Unity has to do with creating a sense of harmony between all the elements on the page. A page with both visual or conceptual elements is more likely to create a feeling of loneliness. Lack of unity in designs can create a sense of unease and chaos. When we design websites, we can make use of a grid to bring about a sense of unity, because the organized elements in the grid will follow an orderly arrangement. However, we need to introduce some variety into our work in order to balance a boring and chaotic design. As shown in Figure (7).

4-2 Space:

"Specific when something is put into it," according to Elements of Graphic Design. Incorporating space into a design helps reduce noise, increase readability, and/or create an illusion. White space is an important part of your planning strategy. As shown in Figure (7).

4-3 Hierarchy:

The hierarchy shows the difference in importance between the items. Designers often create hierarchies through different font sizes, colors, and placement on a page. Usually, the items on top are considered to be the most important as shown in Figure (7).

4-4 Balance:

Balance is the principle that governs how evenly design elements are distributed. Balanced designs tend to look calm, stable and neutral, while unbalanced designs make us feel uncomfortable.

4-5 Scale:

A scale defines a range of sizes; It creates interest and depth by showing how each element relates to each other based on size. As shown in Figure (7).

4-6 Dominance:

Dominance creates an emphasis on one element. We can use color, shape, contrast, scale and position or direction to achieve this. For example, most sites have the image of the main "hero", who uses hegemony to appeal to users, drawing them naturally. As shown in Figure (7).

4-7 Contrast:

Contrast focuses on making items stand out by emphasizing differences in size, color, direction, and other characteristics. as shown in Figure (7)



Figure (7) illustrates the principles of graphic design

5- Interface design rules and standards

To succeed, the interface design criterion must be:

- It is well illustrated with examples because designers go to examples more than body text
- Ensure that examples fully respond to the standard in all aspects and not just what they are intended to illustrate (designers may pick up more than one hint from a given example)
- Have checklists that are as comprehensive and comprehensive as possible (designers prefer scanning the list rather than having to read the text) - for example, a list of all the items that should be on each page or a list of favorite terms
- Have a standards expert available to review new designs in formal standards inspections and for more informal consultations when designers are in doubt about the correct interpretation of the standard (if there is no easy place to deal with questions, each designer will compose their own answer - guaranteed to be different in each case)
- To be supported by. It is not enough to wait for your consultation: you should actively research and visit projects to tell them the standard and comment (gently) on their designs and how to correct the inevitable deviations
- Being a living document under the control of the Standards Manager who updates the standard when new issues arise
- Either respond to other, more common design criteria or contain explicit statements that highlight differences in these other criteria
- Be supported by development tools and templates that facilitate responding to the standard rather than implementing a non-standard design.

- Have a good index (if printed) or a good search complete with hypertext links to the relevant rules

Awareness is particularly important for intranet standards because every department will have a tendency to ignore mandates from headquarters. They usually do this under the pretext of "we are different and the people at HQ don't know our situation". True, but everyone is special so the overall system would be utter chaos if people were allowed to diverge due to special circumstances. Usually, the greater good is actually greater, and usability generally increases through consistency.

There can be a few cases where the circumstances are so special that inconsistency must be tolerated, but the deviations must be limited to cases where they have a very good cause (most good reasons are not good enough).

Finally, realize that the standard has its own usability concerns. This is true whether the standard is implemented as an interactive website with hypertext links or whether it is a traditional printed document. Therefore the proposed design standard should be tested with designers to ensure that they can use it. (Don Norman, 2013, p215)

6- Principles The basic principles of good interaction design

The following principles are fundamental to the design and implementation of effective interfaces. It is applicable to the web, mobile devices, wearable devices, and IoT devices.

• **Discoverability** If users cannot find information or an action, it will not exist for them. All important information and actions must be visible or easily detectable.

Don't hide the complexity. Any attempt to hide complexity will increase it. All elements necessary for successful human-computer interactions (content, menu, etc.) must be visually available at all times.

Use progressive detection to flatten the learning curve. Hide and reveal advanced product capabilities when users need them.

Guide users to more advanced features. Don't wait for people to find something; instead, show it to them. Use contextual cues to improve discoverability.

Provide freedom of choice. Make users "responsible" by letting them make their own decisions. For example, change the default font size in the application. By doing so, you will motivate them to explore the product.

- Efficiency of the User Minimize the cost of interaction by minimizing user input and providing all important information in a jiffy.
- The user interface conforms to user expectations. It doesn't matter what logical arguments you make for how something looks or works, if users expect it to look/work differently, you'll run into a problem. Always design products that are easy to learn and understand. Ideally, products will not have a learning curve.
- Intelligent assumptions. It doesn't have to be everything in the UI by default. If it is not possible to make an accurate guess about the variable, consider not making any assumptions.

- See the status of the system. Users should not have to search for status information. Make users aware of what the system is doing.
- Anticipatory design. Anticipate user needs and wants. Understand how users interact with your product and bring all the information and tools they need to each step of the process.
- Consistency of design “The most important consistency is consistency with user expectations.”
- Visual consistency: Visual consistency
- Consistency of the platform. Create your product according to the platform's guidelines.
- Internal consistency. Define and maintain your visual and interactive languages across all your products/services.
- Consistency across a range of products. If you have a group of products, you should convey an overall look and feel in each one.
- Interaction consistency
- Duck test. If it looks like a duck, swims like a duck, and climbs like a duck, then it probably is a duck. On the other hand, make things that behave differently look different.
- Softness/flexibility: Soft (flexible) interfaces instill in their users a sense of control. Users learn quickly and gain a quick sense of mastery when they work in a comfortable environment.
- Protection of the user's work. Ensure that users never lose their data.

- Helpful error messages. Error messages that help users recover from errors.
- Make actions reversible. Provide an option for the user to undo any activity at any time.
- Usability testing performing adequate usability testing to ensure that the objective is achieved. Test learning ability, satisfaction, and productivity.

Results and Discussion:

1- From the above, it became clear to us that usability of the site is confirmed by applying modern rules for a good visual design between the pages of the website without causing boredom and monotony for the target user of the site.

2- It became clear to us that choosing the color group according to the general goals and values of the site through the design strategy, contributes to achieving the goals of communication, dominance and remembering the content of the communication message on the site itself.

3- The diversity of graphic designs in web design can direct the user's eye within the site and attract the eye through an easy focal point, and then the movement takes place in a smooth direction, and this can be achieved through design principles.

4- It turns out that taking advantage of web design programs connected to the Internet through activities and modern scientific content, enhance the usability processes in the design of multimedia websites.

Recommendations:

- 1- Inviting scientific institutions to include the application of usability rules in their curricula.
- 2- Inviting researchers to continue carrying out field experiments to maximize benefit in this field.

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