



Journal of Applied  
Arts & Sciences



مجلة الفنون  
والعلوم التطبيقية



## الوصول إلى الصفحة الأولى من صفحات الجرائد الرسمية المصرية لضعاف البصر والمكفوفين

### The Accessibility of front page of the Egyptian official newspaper websites for Visually Impaired and Blind Persons

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#### Abstract:

The advances in technology creates many challenges for persons with visual handicaps. The design or format of a web page, may determine whether this resource can be conveniently accessed by a blind person or be an exercise in frustration.

Visually impaired and blind persons may encounter such problems as difficulty in navigating sites that are poorly organized with unclear directions or difficulty in the use or availability of adaptive technology with a computer to access the Web.

This study aims to achieve the Accessibility of the front page of the Egyptian official newspaper websites for Visually Impaired and Blind Persons.

We concluded that the web designer must adhere to WCAG priority 1.0 guidelines and fix the errors that appear when analyzing the site with the Wave tool to make the website accessible to the blind and visually impaired persons.

#### Keywords:

Web Design, Accessible Websites, Blind, Visually Impaired, Wave tool, WCAG priority 1.0 guidelines, Accessibility issues

#### Introduction:

Technology plays an important role in providing handicapped individuals with opportunities to increase their independence and become active members of the

community. Computer technology allows blind and visually impaired individuals the opportunity to access the vast array of information on the Internet. This is an important step for a population that

traditionally was restricted in accessing information. For instance, in the past, a blind person could not access current journals unless they were read aloud or translated into Braille for the individual. Today, a blind person is able to independently and instantaneously locate current journal articles on-line with the aide of a relatively inexpensive screen reader or Braille translator connected to a computer.

However, the advances in technology also create many challenges for persons with visual handicaps. The design or format of a web page, for instance, may determine whether this resource can be conveniently accessed by a blind person or be an exercise in frustration.

Before proceeding the web designer (or web development team) need to know exactly what sort of audience a certain site has. By identifying difficulties they can make significant changes to suit that specific audience and make the website more accessible to them.

People with visual difficulties:

- May be completely blind or visually impaired.
- May suffers from disabilities preventing them from reading or comprehending text properly.
- May not be able to read small text - a large segment of the population could be affected. (4)

In 2011. Angela Guercio, Kathleen A. Stirbens, Joseph Williams and Charles Haiber from Kent State University at Stark, USA. Presented a research entitled “Addressing Challenges in Web Accessibility for the Blind and Visually Impaired” In this paper they introduced WAVES (Web Accessible for Visually-impaired Extraction System), a system

designed for visually impaired and blind users that provides faster web navigation. WAVES is a tool for the fast retrieval of information in a web page which uses visual cues to filter web pages, and produces an excerpt of information that helps the user to decide if a page is worth reading. Data from the webpage are presented to the reader in a concise and sorted-by-weight format which reduces the access time of the screen reader to specific information. They concluded that there was an increase in speed and accuracy when the WAVES system has been used. (3:p2)

In 2013. Joanne Kuzma from the University of Worcester presented a research entitled “Global E-government Web Accessibility: A Case Study”. This article examined the accessibility of e-government websites for 12 countries, including a sampling of sites in developed countries as well as developing nations. The research found that there were serious accessibility issues for all e-government sites, even those whose governments claimed adherence to accessibility standards or legislation. The results show a variety of accessibility problems with the sites, but most issues were centered on a minority of specific industry checkpoint errors, such as lack of providing Alternate text for images. It is suggested that Web developers implement design recommendation provided in industry standards to improve the accessibility rankings of their sites and provide more open sites to people with disabilities. (6:p3)

This study aims to achieve the Accessibility of the front page of the Egyptian official newspaper websites for Visually Impaired and Blind Persons.

**In our study**, we'll analyze the front page of the Egyptian official newspaper websites using “WAVE” tool which will determine

the errors and compare them to WCAG priority 1.0 guidelines so the web designer can fix these errors to make the website accessible to the blind and visually impaired.

### Research Problem

Websites commonly use hypertext combined with multimedia to provide a huge network of educational, governmental and commercial resources. However, due to the multimedia nature of the medium, many print-impaired surfers cannot access some materials. They may encounter the following problems:

- Difficulty navigating sites that are poorly organized with unclear directions.
- Difficulty in the use or availability of adaptive technology with a computer to access the Web.

### Objectives:

- Designing a website that is accessible to the blind and visually impaired.
- Adherence to WCAG priority 1.0 guidelines and solving accessibility problems.

### Methodology:

The study is based on analytical, descriptive researches in order to describe and analyze the front page of the Egyptian official newspaper websites using “WAVE” tool which is a free web accessibility evaluation tool chosen from WebAIM which has provided comprehensive web accessibility solutions since 1999.

“WAVE” tool will determine the main types of accessibility checkpoint problems, as It will determine the number of errors and the type of them and therefore the web designer can fix these errors to make the website accessible to the blind and visually impaired.

## Theoretical Framework

### 1. Designing a website for Visually Impaired and blind visitors

#### 1.1 Designing for Visually Impaired visitors

Here we refer to people who have difficulty reading or seeing things clearly, even with the aid of glasses. This not only includes people who may have inherited such poor eyesight, or have them through accidents, but also for the large number of elderly people. As a person grows older, one of the ailments he/she faces is failing vision. Webmasters can improve the chances that people with poor eyesight will be able to read and use our sites by doing the following:

##### 1.1.1 Web Content Accessibility Guidelines (WCAG)

In order to meet the needs of disabled users of Web sites, the World Wide Web Consortium (W3C), has developed a set of standards to encourage accessibility for those with physical impairments. These international standards - Web Content Accessibility Guidelines 1.0 (WCAG) – were initially published in 1999 and serve as guidelines for Web developers on how to make Web content accessible to not only people with disabilities, but to make them more accessible to all users. (5)

The WCAG guidelines consist of a set of checkpoints which are recommended design practices. There are three priority checkpoint levels in WCAG 1.0 that developers use to analyze the accessibility quality of their sites:

- **Priority 1:** “A” level status is met when all Priority 1 checkpoints are met at the sites. This is the most important priority level for designers to implement.
- **Priority 2:** It is not mandatory. “AA”

level status is met when both Priority 1 and 2 checkpoints are met.

- **Priority 3:** “AAA” level status is met when Priority 1, 2 and 3 checkpoints are met. <sup>(7:p1)</sup>

The following guidelines will greatly assist access for visually impaired visitors:

- Designing screen with little clutter
- Leave considerable space around all items
- Avoid placing more than one hyperlink on any one line
- Avoid tiled backgrounds; text can become obscured
- Avoid dark or bright colored backgrounds; high contrast between text and background is desirable.
- For each page which contains images, provide a text-only Alternative page. This Alternative page can then be "spoken" with screen reading software.
- Include text descriptions for images (which can be "spoken" by those using screen reading software). The letter "D" is placed next to each image to indicate the user that there is an image present.
- With images, utilize the ALT attribute with IMG tags, in order to provide a descriptive phrase which will appear as Alternatives to images in text-only browsers (i.e. Lynx viewer).
- Auditory cues might help an individual using screen-reading software, such as outspoken from Berkeley Access. It allows explanatory text to be placed on a web page so the person could hear the explanation with the use of the

screen reader.

### 1.1.2 Using Larger Text

Some sites have incredibly small print. Their web designers are probably highly focused on aesthetics and see the text as merely part of the sites' overall visual appearance rather than the most important part of the page. It's also possible that these webmasters have designed the page on a large monitor. The problem with this is that such sites are unreadable even for people with normal eyesight when they use a notebook/laptop with a high resolution but small monitor. Since laptops/notebooks are now the rage, with sales even exceeding those of desktops in some quarters, if our site uses small print, many of our audience will have difficulty reading what we write.

In most cases, the user requires larger text. Many visually impaired users want to zoom in on the text without changing the scale of the entire site layout, which can lead to difficulties scrolling and tracking text over long lines.

We have to take into account making the default font a few points larger. It is better to offer text-only versions when we're publishing articles or large quantities of text, so the user can then manipulate the text however he likes.

In the end, as we design, we have to remember that aesthetics is not everything. If our visitors cannot see what we say, or find great difficulty reading, our site is not going to be as successful as it can be. <sup>(9)</sup>

See Figure (1)



Figure 1: Large text on Reddit.com

### 1.1.3 Contrast is Key

Another thing that will help people with poor eyesight read our site is to make sure that the colors of our text and the background have a high contrast. Don't put white words on a gray background or gray words on a white or black background. These combinations are extremely difficult to distinguish for people with poor eyesight. In fact, they are not easy to read even for people with normal eyesight. Although white text on a black background may seem to fulfill this suggestion of contrasting colors, in general, for things that are read on a computer monitor, black text on a white background is vastly better.

To offer more contrast between elements we can use bold text for added readability on low-contrast items and avoid very thin fonts. Also, we must avoid using any JavaScript or CSS techniques that would prevent users from highlighting elements of the page with their mouse. Many visually impaired users make use of highlighting to increase contrast and to aid visual focus.<sup>(9)</sup> See Figure (2)

rails /	rails /		
name	age	name	age
actionmailer/	about 22 hours ago	actionmailer/	Wed Apr 13 10:40:18
actionpack/	about 7 hours ago	actionpack/	Thu Apr 14 00:57:44
activemodel/	about 7 hours ago	activemodel/	Thu Apr 14 01:43:51
		active-record/	Wed Apr 13 11:41:42

Figure 2: Contrast

### 1.1.4 Use Keyboard Shortcuts to Aid Navigation

Using keyboard shortcuts can make site navigation for the visually impaired user more easier. It's possible to navigate a site with the use of arrow keys and a few quick keystrokes, eliminating the need to follow a mouse cursor across a screen. This will reduce eye strain and frustration. Many users with visual impairments surf the web on large monitors, which can lead to a lot of head and eye movement, particularly at

shorter focal distances. It's better that the user spend a short time following the cursor around the screen. (9)

## 2. Analyzing Web Accessibility

### 2.1 Wave Tool

We must choose a software accessibility testing tool to analyze the sites. For this study a software product was chosen from WebAIM which has provided comprehensive web accessibility solutions since 1999. These years of experience have made WebAIM one of the leading providers of web accessibility expertise internationally. WAVE is a free web accessibility evaluation tool developed and provided at no cost by WebAIM to aid in the web accessibility evaluation process.

WAVE exposes errors and highlights content where accessibility considerations require human judgment. (E.g. WAVE exposes ALT text so a human evaluator can determine whether it is appropriate for the image). Icons are used as feedback elements within the web page being evaluated. (10)

- The WAVE tool is available in both English and Spanish.
- WAVE is a tool to help web developers make their web content more accessible.
- WAVE cannot tell us if our web content is accessible. Only a human can determine true accessibility. But, WAVE can help us to evaluate the accessibility of our web content. For example, WAVE cannot tell us if our ALT text is equivalent and appropriate, so it instead reveals the ALT text so it can be evaluated by the WAVE user.
- WAVE will present our page with embedded icons and indicators which present information about the



accessibility of our page.

- The report section at the top of the page indicates if WAVE detected any errors or not. The absence of errors doesn't mean that the page is accessible. "RED" icons indicate accessibility errors
- while "GREEN" icons indicate accessibility features. The other icons and indicators indicate other elements

that we should look at.

- We can view a brief overview of what each icon or indicator means by clicking it and viewing its documentation or by accessing the documentation panel.
- We can run the wave test with any one of these browsers "Internet Explorer, Mozilla/Firefox or Google Chrome".

### Results:



Figure 3: Al Akhbar Front Page

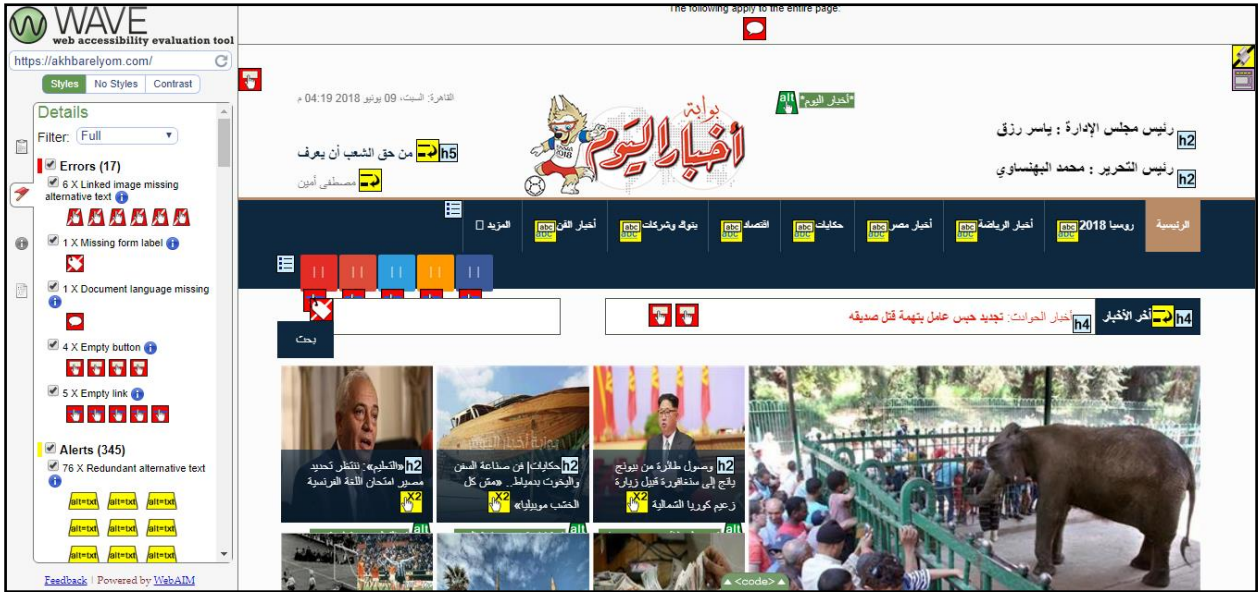


Figure 4: Analyzing Al Akhbar Front Page using Wave tool

Table 1: Al Akhbar Front Page Errors

Number of Errors	Error type	Standards and Guidelines
6	Linked image missing Alternative text	Level "A"
1	Missing form Label	Level "A" Level "AA"
1	Document language missing	Level "A"
4	Empty Button	Level "A"
5	Empty Link	Level "A"
Total "17" Errors		



Figure 5: Al Ahram Front Page



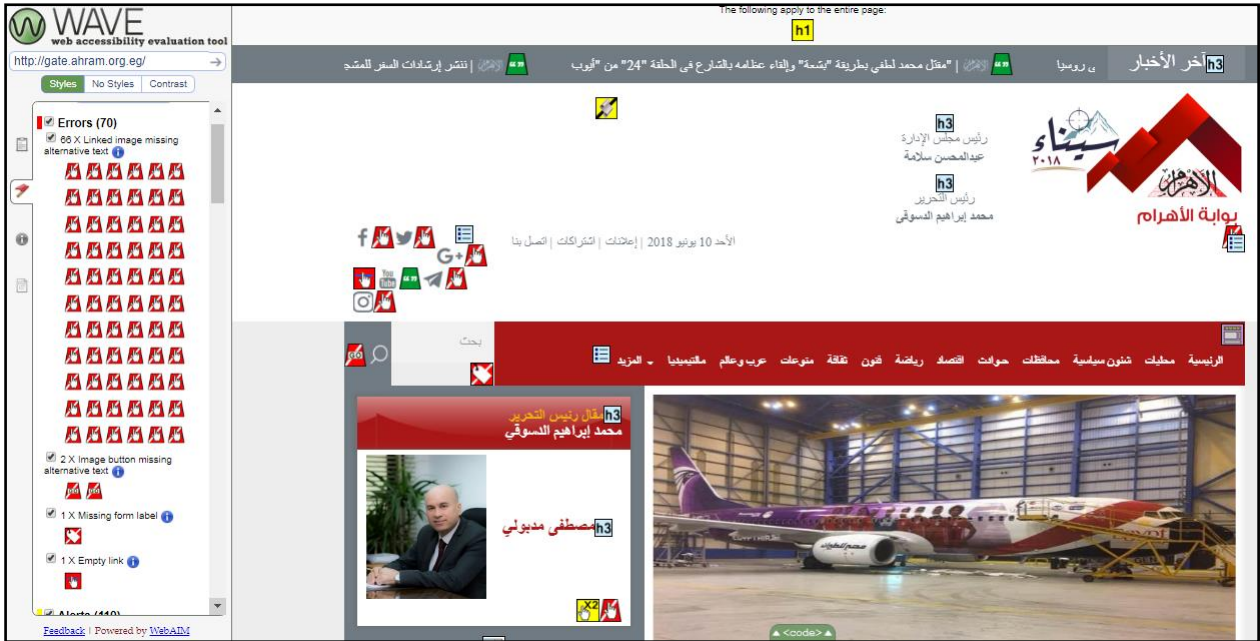


Figure 6: Analyzing Al Ahram Front Page using Wave tool

Table 2: Al Ahram Front Page Errors

Number of Errors	Error type	Standards and Guidelines
66	Linked image missing Alternative text	Level "A"
2	Image button missing Alternative text	Level "A"
1	Missing form Label	Level "A" Level "AA"
1	Empty Link	Level "A"
Total "70" Errors		



Figure 7: Al Gomhuria Front Page



Figure 8: Analyzing Al Gomhuria Front Page using Wave tool

Table 3: Al Gomhuria Front Page Errors

Number of Errors	Error type	Standards and Guidelines
1	Document language missing	Level "A"
17	Linked image missing Alternative text	Level "A"
4	Spacer image missing Alternative text	Level "A"
Total "22" Errors		

**Table 4:** Comparing Front Pages Errors

<b>Error type</b> "Standards and Guidelines"	<b>Al Akhbar</b> Number of errors	<b>Al Ahram</b> Number of errors	<b>Al Gomhuria</b> Number of errors
Linked image missing Alternative text Level "A"	6	66	17
Missing form Label Level "A"- "AA"	1	1	0
Document language missing Level "A"	1	0	1
Empty Button Level "A"	4	0	0
Empty Link Level "A"	5	1	0
Image button missing Alternative text Level "A"	0	2	0
Spacer image missing Alternative text Level "A"	0	0	4
<b>Total</b>	<b>17</b>	<b>70</b>	<b>22</b>



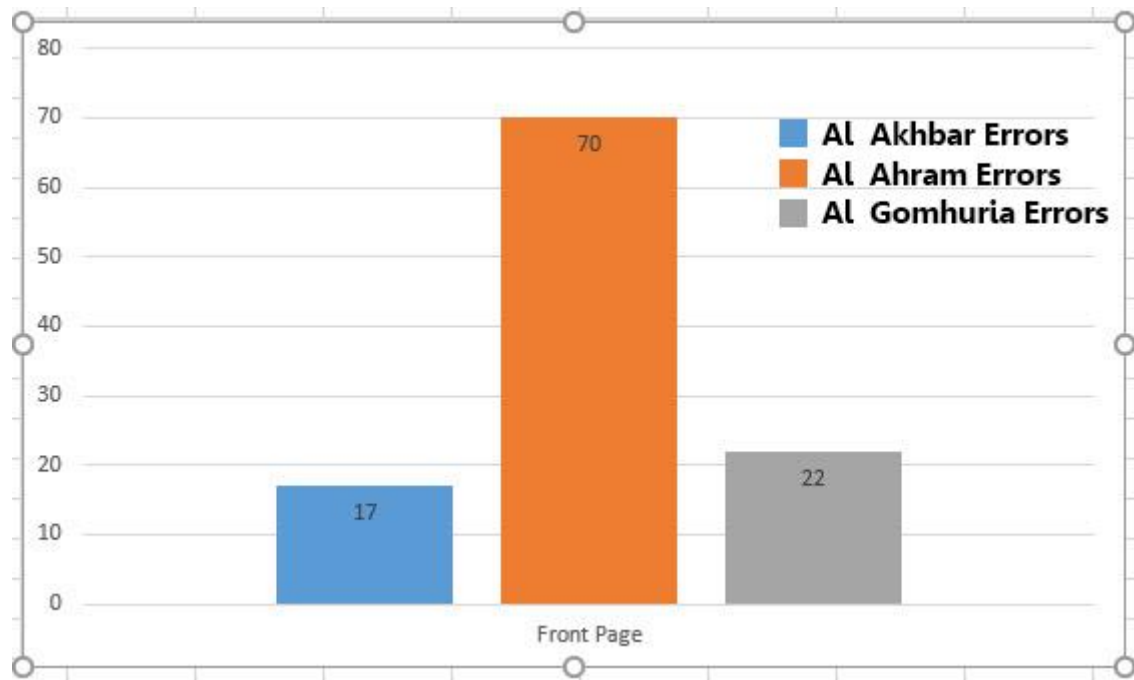


Figure 9: Comparing Front Pages Errors

### Discussion

- **Linked image missing Alternative text** means that an image without Alternative text results in an empty link.
- Images that are the only thing within a link must have descriptive Alternative text. If an image is within a link that contains no text and that image does not provide Alternative text, a screen reader has no content to present to the user regarding the function of the link.
- The front page of Al Ahram official website has the largest number of linked image missing Alternative text error.
- **Missing form label** means that form control does not have a corresponding label.
- If a form control does not have a properly associated text label, the function or purpose of that form control may not be presented to screen reader users. Form labels also provide visible descriptions and larger clickable targets for form controls.
- Labels are not required for image, submit, reset, button, or hidden form controls.
- **Document language missing** means that the language of the document is not identified.
- Identifying the language of the page allows screen readers to read the content in the appropriate language. It also facilitates automatic translation of content.
- **Empty button** means that a button is empty or has no text value.
- When navigating to a button, descriptive text must be presented to screen reader users to indicate the function of the button.
- The front page of Al Akhbar official website has the largest number of empty button error.

- **Empty Link** means that link contains no text.
- If a link contains no text, the function or purpose of the link will not be presented to the user. This can introduce confusion for keyboard and screen reader users.
- The front page of Al Akhbar official website has the largest number of empty link error.
- **Image button missing Alternative text** means that Alternative text is not present for a form image button.
- Image buttons provide important functionality that must be presented in the Alternative text. Without Alternative text, the function of an image button is not made available to screen reader users or when images are disabled or unavailable.
- **Spacer image missing Alternative text** means that a layout spacer image (which should have null/empty Alternative text) does not have an "ALT" attribute.
- Spacer images are used to maintain the layout. They do not convey content and should be given null/empty Alternative text (ALT="") so they are not presented to users and are ignored by screen readers.
- The front page of Al Gomhuria official website has the largest number of spacer image missing Alternative text error.
- The home pages of all official websites are equal or converged in other errors.
- This study benefited from the conclusion of the study presented by Angela Guercio, Kathleen A.

Stirbens, Joseph Williams and Charles Haiber (2011). They concluded that there was an increase in speed and accuracy when the WAVES system has been used.

- This study found that there are serious accessibility issues for all home pages of the Egyptian official newspaper websites, demonstrating that they are not adhering to WCAG priority 1.0 guidelines.
- The study limited the number of errors and the type of them and therefore the web designer can fix these errors to make the website accessible to the blind and visually impaired.

### Conclusion

- The web designer must adhere to WCAG priority 1.0 guidelines.
- The use of the Wave tool helps to identify errors accurately and quickly
- The web designer should fix the errors that appear when analyzing the site with the Wave tool to make the website accessible to the blind and visually impaired.

### Recommendations

This Research can be used to apply not only to Egyptian electronic newspapers, but also to Egyptian government websites that provide services to Egyptian citizens. As the worldwide usage of e-government sites expand, both Egyptian government and web administrators should work to ensure that their disabled Egyptian persons have equal access to websites.

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## الملخص:

قد يحدد تصميم صفحة الويب ما إذا كان يمكن الوصول إلى هذا الموقع بسهولة من قبل شخص أعمى أو ضعيف البصر، أو أنه يكون أمراً محبطاً.

الشخص الذين يعانون من صعوبات بصرية:

- قد يكون أعمى بالكامل أو ضعيف البصر.
- قد يعانون من إعاقات تمنعه من القراءة أو فهم النص بشكل صحيح .
- قد لا يتمكن من قراءة نص صغير.

لذا تتلخص مشكلة البحث في:

- صعوبة في التنقل داخل المواقع الالكترونية لسوء التنظيم في الصفحة مع وجود اتجاهات ارشادية غير واضحة.
- صعوبة في استخدام أو توفر التكنولوجيا التكيفية مع جهاز كمبيوتر للوصول إلى الويب.

لذا فإننا في هذا البحث نهدف إلى:

- تصميم موقع إلكتروني متاح للإستخدام بواسطة المكفوفين وضعاف البصر.
  - الالتزام بمعايير الوصول لمحتوى الويب.
- وتقوم الدراسة على المنهج الوصفي التحليلي من أجل وصف وتحليل الصفحات الرئيسية لمواقع الصحف الرسمية المصرية باستخدام أداة "WAVE" .
- وتبرز أهم النتائج فيما يلي:

- الصفحات الرئيسية لجميع المواقع الرسمية متساوية أو متقاربة في الأخطاء.
  - حددت الدراسة عدد الأخطاء ونوعها التي سببت مشكلات في الوصول إلى الصفحات الرئيسية لمواقع الجرائد الرسمية المصرية ، مما يدل على أن المصممون لم يلتزموا بالمعايير التوجيهية ذات الأولوية ١,٠ WCAG ، ويمكنهم إصلاح هذه الأخطاء لجعل مواقع الويب متاحة للمكفوفين وضعاف البصر.
- وقد خلصنا من هذه الدراسة بالاستنتاجات التالية:

- يجب أن يلتزم مصمم الويب بمعايير ١,٠ WCAG "معايير الوصول لمحتوى الويب".
- يساعد استخدام أداة Wave على تحديد الأخطاء بدقة وبسرعة.

## الكلمات المفتاحية

- تصميم مواقع الويب ، مواقع الويب التي يمكن الوصول إليها ، المكفوفين ، ضعاف البصر ، أداة Wave ، معايير الوصول لمحتوى الويب WCAG 1.0