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# Usability Evaluation of Online News Websites: A User Perspective Approach

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***Abstract*—**Online news websites are one of the main and wide areas of Mass Media. Since the nineties several Jordanian newspapers were introduced to the World Wide Web to reach various and large numbers of audiances. Examples of these newspapers that have online version are Al-Rai, Ad-Dustor and AlGhad. Other pure online news websites include Ammon and Rum. The main aim of this study is to evaluate online newspaper websites using two assessment measures; usability and web content. This aim is achieved by using a questionnaire based evaluation which is based on the definition of usability and web content in the ISO document as the standard number 9241-part 11. The results are obtained based on 204 audiences' responses. The results of the research showed that the usability factor is relatively good for all Jordanian online newspapers whereas the web content factor is moderate.

***Keywords*—** Communication and Mass Media, Jordanian Online News websites, Website Content, Website Usability.

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## I. Introduction

THE increase and rapid developments of World Wide Web caused many changes in all media industries. Communication and mass media which focuses on presenting current news to the public through print media, broadcast media, and Internet-based media is considered one of the main industries that are affected by the rapid development of the Internet.

Going online creates many opportunities for newspapers such as competing with other mass media, tying mass media community together through the utilization of various advertising agencies to strengthen the chances of survival in the media sector, and decreasing the costs of printing process [1] [2]. Moreover, the rapid development of the Internet field encourages designers and developers of websites to improve their websites based on the feedback of websites' evaluation.

Usability is a qualitative attribute which is used to assess the easiness of interface usage from users' perspectives. Usability is defined by Nielsen in ISO 9241-11 standard document [3] as "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use". This definition describes that usability is about human capabilities and users' needs. In the context of website usability, it is a human issue which should be examined based on a set of well defined guidelines or standards such as how human beings feel, look at, and use websites.

Generally, the term "Web Content" refers to the information in a web page or web application, including text, images, forms, and sounds. The content of a website is a major criterion in usability evaluation where it affects website evaluation results and because of that it is defined separately by the Web Accessibility Initiative (WAI) organization, which is part of the World Wide Web Consortium (W3C), as a Web Content Accessibility Guidelines 1.0 (WCAG1.0). These guidelines explain how to make web content accessible to people with disabilities. Each one of the fourteen guidelines has a number of checkpoints describing how to apply the guidelines to particular features of the webpage. The main aim of the web content accessibility guidelines is to reduce the number of barriers on web pages for people with disabilities [4] [5].

During last few years, different researchers developed, used, and maintained many techniques and methods for evaluating websites of different domains. These techniques and methods, which are used to determine the successfulness of the website and help designers and developers improve websites, are based on different factors. These techniques and methods are applied to different aspects of websites such as design, content, aesthetics, accessibility, and usability.

Generally, the usability of a website can be evaluated using two common usability evaluation methods and techniques. These two methods are: the inspection based methods (i.e., without end users) and the test based methods (i.e., with end users) [6] [7]. Usability inspection methods (often referred to as Expert Review where experts' knowledge is used to judge the usability of the website) are used to identify usability problems and improve the usability of interface design by checking it against established standards; these methods include heuristic evaluation [8], cognitive walkthroughs [9] and action analysis. On the other hand, usability test based methods provide direct information about how people use a given website and their exact problems with a specific interface. There are several test methods for testing usability, the most common test methods are: thinking aloud [10], field observation, and questionnaires [11] [12].

The evaluation of the usability of websites continued over years in different domains such as library websites, e-government websites [13], and universities websites [14]. As for the evaluation of news websites, there is not much work in this direction. Reference [1] analyzed in his study the content of three websites of U.S. national newspapers; this study focuses on website partitions as the home pages, front pages, and the news articles within the front pages rather than news content of the Internet newspapers. The content analysis of these three U.S. Internet newspapers found that Internet

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newspapers gave more priority to providing textual information than graphic information, and large graphics were more likely to appear on homepages than on front pages and news article pages. The news links and the multiple communication channels adopted by Internet newspapers in web page design created a new environment of communication, involving more than host newspaper and initial audience.

In Ref. [15], the authors showed that different changes can be made by introducing e-newspapers from the publisher point of view. The study discussed the challenges of introducing a portable digital e-newspaper with the same readability as in print media using the new e-paper technology from the publisher point view. This study is based on six workshops, 14 interviews with newspaper managers, and three brainstorming sessions with the e-paper steering group; this group consists of representatives from the Swedish Newspaper Publishers' Association and eight Swedish newspaper managers. The results of this study summarize the challenges into three major areas which are design, organization and business models.

In Ref [16], the authors evaluated the usability of four Malaysian online news websites: The Star, The New Straits Times, Berita Harian, and Utusan Malaysia newspapers. The study used a questionnaire evaluation technique that consists of 24 questions. The questionnaire was divided into four parts and a non-probability sampling of 80 frequent online news readers were selected as respondents for this study purposes. The results of the analysis showed the good and the bad of the usability aspects of these websites in order to allow website designers and developers to improve the websites based on the evaluation results. Besides, the results showed that New Straits Time news website obtained the highest satisfaction of the participants.

As for Jordanian news websites and according to Jordan Press Foundation (2007) [17], a study is conducted in 2004-2005 for the "Al-Rai" newspaper website to increase the website usablility issues from the website visitors' point of view. In that study, Jordan Press Foundation used the Alexa online [18] global ranking website to show that Jordanian online newspapers ranked at the top among all the daily Arab press published all around the world in terms of development and the number of visitors.

Because of the various changes that affect the newspaper sector in Jordan, the studies unit of Higher Media Council carried out a study that analyzed the structural contents of Jordanian daily newspapers (Jordanian Higher Media Council, 2005) [19]. The study covered the leading Jordanian daily newspapers and they are seven and are listed in Arabic alphabetical order as follows: "Al-Anbat", "Jordan Times", "Ad-Dostour", "Addeyar", "Al-Rai", "Al-Arab Al-Yawm", "Al-Ghad". The time period of the study extended from 15/6/2005 to 15/9/2005. The study covered the structural content of the Jordan News Agency "Petra" for the same period. The Higher Media Council study provided local newspapers with guides based on the structural content analysis aspect without dealing with the structural analysis of material content.

Because of the widespread use of website evaluation methods and techniques in different disciplines, the main objective of this paper is to evaluate some Jordanian online newspapers' websites using two main methods: the usability and the website content. This objective is accomplished by utilizing a sample of different audiences who explore the Jordanian online newspapers in order to carry out a website evaluation results by filling a questionnaire related to the research objective. The questionnaire contains various questions based on selected factors for both of the evaluation methods.

After collecting the data, the results of data analysis are assumed to help designers and developers to make different improvements on the design, or the contents of their websites.

## II. The Methodology of Evaluation

This section describes how to accomplish the objective of this research which is evaluating the Jordanian online news websites with respect to the website usability and content factors based on users' point of view. Section *A* describes the evaluation technique used.

### *A. Evaluation Factors, Criteria, and Attributes*

All tables and figures you insert in your document are only to help you gauge the size of your paper, for the convenience of the referees, and to make it easy for you to distribute preprints.

In the context of websites evaluation, usability is a human issue and should be examined on the basis of well defined guidelines such as how human beings feel, look at, and use websites. The usability factor is divided into four major criteria which are website performance, navigation between website parts, website user interface, and finally the website content criterion. The content criterion describes the content, organization and readability of the website. So, all these criteria are guided by many checklists (questions) which are adopted from global usability and accessibility guidelines.

The usability factor is defined by a 23-usability criteria list that consists of the most important aspects, where the contents of the list are categorized into four categories (criteria) as described in Table I.

The website content criterion is the fourth category of the usability criteria. It is defined by the EETAP Resource Library [20] as a collection of criteria that evaluate Internet information sources. Different views and various ideas about evaluating the contents of any website are categorized into five broad categories, but for the purpose of this research, we focused on certain criteria that describe the contents of online newspaper websites. The five broad categories that define the contents of a website are listed in Table II.

This research focused on Authority, Information Quality (Context/Coverage, Accuracy, and Currency), and Web Design (Originality, Appearance, Writing, and Media) as website content criteria. The web design criterion consists of four main attributes which are listed in Table III.

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TABLE I
CATEGORIES OF USABILITY

| Category # | Name | Description |
|---|---|---|
| 1 | Performance and Effectiveness | Defines how much time, and how many steps, are required for people to complete online basic tasks? |
| 2 | Links and Navigation | Defines how clear and consistent is the navigation mechanisms used in the website. |
| 3 | User Interface | Defines different interface issues such as the availability and helpfulness commands, menus design, and the use of GUI designs. |
| 4 | Content, Organization, and Readability | Describes website material contents, organization and updating, and defines how much these contents are clear, easy to find and read. |

TABLE II
CATEGORIES OF CONTENTS CRITERIA

| Category # | Name | Description |
|---|---|---|
| 1 | Authority | It refers to the credibility and expertise of the purveyor of the information on the website: the authority of the author, and the authority of the website publisher. |
| 2 | Audience | This criterion determines the audience for the page or site |
| 3 | Context/Coverage | Coverage refers to the depth or breadth of the information provided. |
| 4 | Accuracy | It means that the online information is up-to-date, accurate and checked against other resources. |
| 5 | Currency | The currency is related to both the website and the data or information on the website. |

### *B. The Questionnaire Design*

The empirical testing utilized a questionnaire filled by different audiences who explore the Jordanian online newspaper websites. This questionnaire is developed depending on common international criteria and checklists. The questionnaire fulfills the research needs because it contains clear, consistent, and simple questions based on various factors discussed in the previous section. The questionnaire is prepared in two languages: English and Arabic, and distributed into two forms: online and paper.

The questionnaire is divided into three main parts. The first part consists of demographic information of participants, which contains (9) questions none of them is related to users' identity and all responses are protected. The second part, which is the usability questions, is divided into four sections with six questions for each. The last part, which consists of questions about contents of the website, is divided into three sections with various numbers of questions with a total of 26 questions. The questionnaire used two types of scales: a 5 points scale and a check scale with yes, no, and not applicable response types. Table IV shows how the scale is converted into its metric values. The usability criterion x is defined as:

$$x = \frac{\sum y}{m}$$

TABLE III
ATTRIBUTES OF WEB DESIGN CRITERIA

| Attribute # | Name | Description |
|---|---|---|
| 1 | Originality (Uniqueness) | It means the use of an original site's elements, or the use of new and original techniques to make the entire site pleasant, interesting, and unique for visitors. |
| 2 | Appearance | It is one of the basic design principles of website layout which includes: graphic used, speed of loading graphics, editing control, and the general attractiveness. |
| 3 | Quality of Writing | This criterion concerns about the language used, and all quality writing issues related to that language such as misspelled words, punctuation mistakes, and other common errors. |
| 4 | Media | This criterion includes the use of sound or video that can certainly enhance the presentation of contents of the website in a great deal. |

Where y: is the merit for each question of the criterion and m is the number of questions of that criterion. The results of this formula are represented into five quality levels as described in Table V where the lowest level represents bad usability quality level and the highest level is the excellent level. These usability quality levels describe how much the Jordanian online newspapers are accepted.

TABLE IV
ANSWERS OPTIONS FOR THE USABILITY QUESTIONS AND THEIR CORRESPONDING MERITS

| Option | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Strongly Disagree | Agree | Fair | Disagree | Strongly Disagree |
| **Merit** | 0.00 | 0.25 | 0.50 | 0.75 | 1.00 |

The second scale used in the questionnaire is the Yes, No, and NA (Not-Applicable) Scale. This scale is applied to the third part of the questionnaire which is the part that concerns the content factor evaluation checklists. This scale describes how much any website contents are worthy, efficient, useful, and satisfactory to all audience news needs.

TABLE V
USABILITY CRITERION POINTS AND THEIR CORRESPONDING QUALITY LEVEL

| Points of Usability Criterion ($x$) | Usability Quality Level |
|---|---|
| $0.0 \leq x \leq 0.2$ | Bad |
| $0.2 \leq x \leq 0.4$ | Poor |
| $0.4 \leq x \leq 0.6$ | Moderate |
| $0.6 \leq x \leq 0.8$ | Good |
| $0.8 \leq x \leq 1.0$ | Excellent |

This scale is calculated as follows: first step is gathering participant's responses into eight groups where each group evaluates one Jordanian online newspaper website. The second step is collecting answers of these selected users to the

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third part of questionnaire. Then the third step is analyzing their answers based on the Cronbach's Alpha Coefficient (α) equation for each scale (Yes/No/NA) [21], where α is defined as:

$$\alpha = \frac{k}{k-1}\left[1 - \left(\sum \frac{s_i^2}{s^2}\right)\right]$$

Where $k$ is the number of tests per evaluation items, $s_i^2$ is the variance of a single test per evaluation item and $s^2$ is the variance of the total scores.

Cronbach's Alpha Coefficient (α) takes values from (0.0) to (1.0). The final step is representing the positive (α) (α (Yes)) for each website into a qualitative content rate level based on Table VI.

TABLE VI
CONTENT RATE LEVEL

| α (Yes) | Positive Content Rate Level |
|---|---|
| 0.0 ≤ α (Yes) ≤ 0.2 | Bad |
| 0.2 ≤ α (Yes) ≤ 0.4 | Poor |
| 0.4 ≤ α (Yes) ≤ 0.6 | Moderate |
| 0.6 ≤ α (Yes) ≤ 0.8 | Good |
| 0.8 ≤ α (Yes) ≤ 1.0 | Excellent |

On the other hand, a random selection of three responses for each eight newspapers from the whole sample is necessary to gain extra accurate results about the contents of these eight websites from a different point of view. This view supports the comparison between two groups of Jordanian online newspapers. The first group is the e-newspapers such as Al-Rai, Ad-Dustour, and Al-Ghad newspapers which all have its own paper form published daily. The second group is the pure online newspapers such as Ammon, Rum, and Assawsana which all do not have thier own paper form. Then after selecting these samples, recalculate the (α) coefficient for these two groups of Jordainian websites, and compare the results based on the scale shown in Table VII.

## III. Results Discussion

Two comparisons are made in this research. The first one is described in the previous section which is comparing between contents quality of two types of Jordanian online newspapers, the first one is the e-newspapers (e-paper) such as Al-Rai, Ad-Dustour, and Al-Ghad newspapers, and the second one is the pure online news websites such as Ammon, Rum, and Assawsana online newspapers.

TABLE VII
CRONBACH'S ALPHA COEFFICIENT (A) AND CONTENT RATE LEVEL

| α (Respond) | Content Rate Level |
|---|---|
| α (Yes) | Very Useful for audiences' Information Needs |
| α (No) | Not Worth Coming Back to Visit |
| α (NA) | Worth Bookmarking for Future Reference |

The second comparison considered in this research is between the results of the Content, Organization, and Readability criteria of the usability evaluation factor and the results of the content factor as a whole. This comparison is made to improve the content factor which is part of the usability factor, and to prove that all the three ctaegories of the web content factor which are suggested represent this factor. Table VIII shows this comparison.

TABLE VIII
COMPARISON BETWEEN THE CONTENT CRITERIA OF USABILITY QUALITATIVE LEVEL AND THE CONTENT FACTOR RATE LEVEL

| Content Rate Level | Usability Quality Level |
|---|---|
| Not Worth Coming Back to Visit | Bad<br>Poor |
| Worth Bookmarking for Future Reference | Moderate |
| Very Useful for audiences' Information Needs | Good<br>Excellent |

Empirical testing is a recommended type of research as it covers large sampling size and investigates subjects' responses more accurately. Because of that; this section describes experiments and results of this testing technique in the following manner: the first subsection represents the questionnaire domain and how it is distributed to users (questionnaire forms). In the second subsection demographic information related to the participants are analyzed. And finally results obtained from the questionnaire evaluation are discussed.

### *A. Unit of Analysis*

The questionnaire testing technique is used to accomplish the main goal of this research which is evaluating the Jordanian online newspapers websites. This technique utilizes users' opinion and expectations about their preferred Jordanian news websites. Therefore, the domain of this research is eight Jordanian online newspapers divided into two groups; the first one contains newspapers that have its own daily paper form and electronic form, and the second one does not have their own paper form but have a daily updated electronic form. These eight Jordanian newspapers are listed in Table IX.

TABLE IX
THE NEWS WEBSITES USED IN THE STUDY

| No | Website | Website URL |
|---|---|---|
| 1 | Al-Rai Newspaper | www.alrai.com |
| 2 | Al-Ghad Newspaper | www.alghad.jo |
| 3 | AD-Dustour Newspaper | www.addustour.com |
| 4 | Al-Arab Al-Yawm Newspaper | www.alarabalyawm.net |
| 5 | Ammon Online News | www.ammonnews.net |
| 6 | Jordan News Agency (Petra) | www.petra.gov.jo |
| 7 | Rum Agency for News | www.rumonline.net |
| 8 | Khaberni Online News | www.khaberni.com |
| 9 | Assawsana Online News | www.assawsana.com |

### *B. Questionnaire participants*

The questionnaire covers a wide range of users because it is

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developed in two languages; English and Arabic and because it is distributed into to two forms; online and paper forms. 39.8% of the total number of respondents filled the online form of the questionnaire and 59.2% of the participants filled the paper form of the questionnaire.

The total usable responses were (204) questionnaires. These responses are grouped and analyzed based on some aspects; first, the popularity of the news paper (newspapers are listed in Table IX). Second, the results of the first eight questions listed into the first part of the questionnaire under demographic information. Finally, other reasons like: gender, age, job type, computer experience, and Internet experience.

As shown in Fig. 1, the (204) collected responses are distributed based on the most visited online newspaper. The figure also shows that the most preferred newspaper to view online from the first group of Jordanian newspapers is the Al-Rai newspaper which gains a score of 42.23%. The next one is the Al-Ghad newspaper which gain a score of 26.21% and the least preferred to visit is the Al-Arab Al-Yawm newspaper which gains a score of 3.40%. On other hand, from the second group of Jordanian newspapers, the Ammon news website has the highest score of visitors by 5.83%, the Rum news website has the least score of 1.46%.

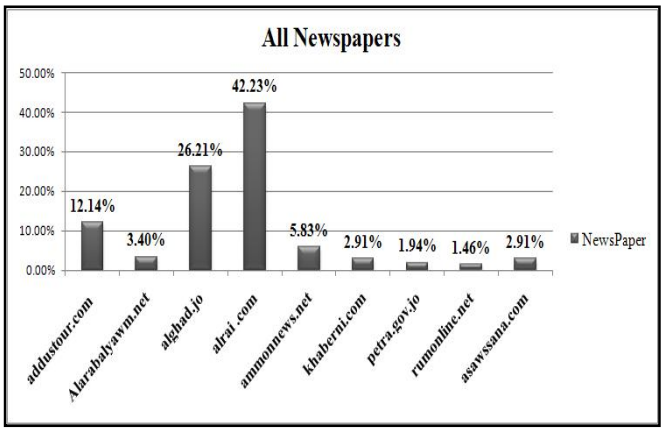



Fig. 1 Distribution of all Jordanian Newspapers

In addition, most of the participants who read the online Jordanian newspapers were males (63%), and the females were (37%). The participants' ages ranged from 18 to 30 years old. Fifty percent (50%) of the participants were (18 to 23) years old, 29% were (24 to 27) years old, and 21% were (28 to 30) years old.

Participants of different fields have filled out the questionnaire; university students, academic teachers, administrative employees, and employees working in the Jordanian communication and mass media area (C&MM). The distribution of the participants according to their jobs is presented in Fig. 2 which shows that 16% of the participants were employees in communication and mass media area.




Fig. 2 Job Type of Participants

With respect to the different levels of experience and technical knowledge with respect to using both computers and Internet, Fig. 3 shows that most users who read the online newspapers have 4 years or more of experiences in both computer use and Internet access rating 77.67% for computer experience and 63.59% for Internet experience.

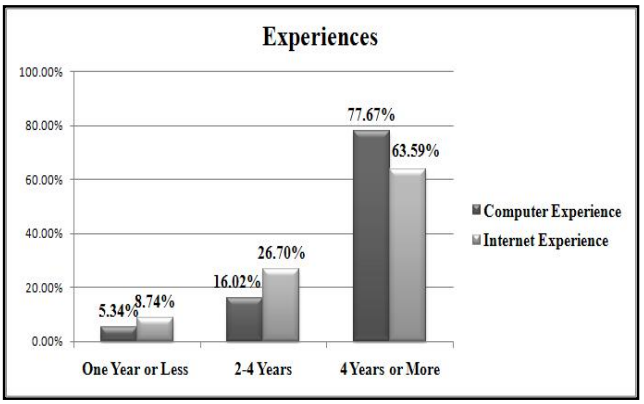



Fig. 3 Computer/Internet Experiences of Participants

### *C. Usability Results*

As mentioned in the introduction section, usability factor was defined by the ISO-9241-part 11, and is evaluated using the questionnaire method. From the second part of the questionnaire which contains four sections for each category of the usability factor (Performance, User Interface Design, Navigation & Links, and Content, Organization, & Readability) the usability factor calculated. All 24 questions which are listed in these four sections are listed in the form of statements about users' opinion and expectations of the most visited Jordanian online newspaper website. Answers of these 24 questions are rated from 1 to 5; where 1 means a strong disagreement with the question and 5 means a strong agreement with the question. Moreover, all of these parts' answers are collected based on predefined eight Jordanian online newspapers websites.

Table X describes for each newspaper website the number of responses, and the usability points versus the quality rate for each category. This table shows that the Al-Rai newspaper has the highest performance quality rate 0.63, and in opposite;

the least performance quality rate is 0.42 for the Khaberni news website. Also, the user interface design and the navigation categories for the Al-Arab Al-Yawm newspaper is the highest quality rate (0.64, and 0.71 respectively), in the other hand the least quality rate for these two categories are for the Khaberni news website and Rum news websites (Rum has 0.5 and Khaberni has 0.53). For the most important category which is the goal of this research; the Content, Organization and Readability, the Assawsana news website has the highest quality rate which is (0.7) and the least quality rate is for the Khaberni news website with value (0.53).

TABLE X
THE USABILITY RESULTS OF THE NEWS WEBSITES

| Newspaper | # of Responds | Usability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Performance & Effectiveness | | User Interface Design | | Navigation & Links | | Content, Organization, & Readability | |
| | | Us. Points | Qu. Rate | Us. Points | Qu. Rate | Us. Points | Qu. Rate | Us. Points | Qu. Rate |
| **Al-Rai** | 88 | 331 | 0.63 | 320 | 0.61 | 336 | 0.64 | 351 | 0.66 |
| **Al-Ghad** | 54 | 199.5 | 0.62 | 205.5 | 0.63 | 213.75 | 0.66 | 210.5 | 0.65 |
| **AD-Dustour** | 26 | 84.75 | 0.54 | 88.00 | 0.56 | 83.75 | 0.54 | 88.75 | 0.57 |
| **AlArab Al-Yawm** | 7 | 24.50 | 0.58 | 27 | 0.64 | 29.75 | 0.71 | 27.25 | 0.65 |
| **Ammon** | 12 | 39.25 | 0.55 | 42.25 | 0.59 | 40.5 | 0.56 | 41.75 | 0.58 |
| **Petra** | 4 | 13.25 | 0.55 | 15 | 0.63 | 15 | 0.63 | 13.25 | 0.55 |
| **Rum** | 3 | 9.5 | 0.53 | 9 | 0.5 | 9 | 0.5 | 9.5 | 0.53 |
| **Khaberni** | 6 | 15 | 0.42 | 17 | 0.47 | 19.25 | 0.53 | 17.75 | 0.49 |
| **Assawsana** | 6 | 20 | 0.56 | 19.25 | 0.53 | 24.75 | 0.69 | 25.25 | 0.7 |

In general, results of the usability factor from the previous detailed table are summarized in Fig. 4 which shows a cumulative usability qualitative rates and their corresponding quality level for all of these eight Jordanian online newspapers websites. This figure shows that all of these websites has the Moderate or Good usability quality level and the cumulative usability qualitative rate ranges from (0.479) to (0.646).

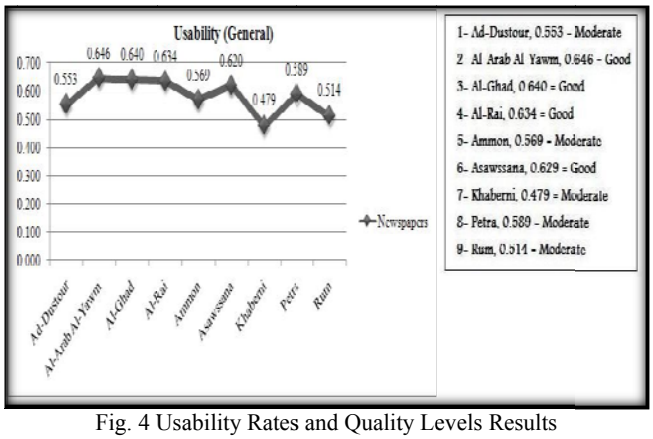


Fig. 4 Usability Rates and Quality Levels Results

In addition, the usability results also are analyzed according to the communication and mass media employees' point of the view, where Fig. 5 describes these results and shows changes from the general usability results.

*D. Web Content Results*

The web content Factor is defined by the Web Content Accessibility Guidelines 1.0 (WCAG1.0). This factor is evaluated by the third part of the questionnaire. This part contains three detailed sections for each category of the Web content factor (Authority, Web Design, and Information Quality). Each category is described by various questions that are listed in the form of statements about users' opinion and expectations of the most visited of the eight Jordanian online newspapers websites' contents.

Answers of these all 26 questions are rated by using the yes/no/not-applicable measures; where Yes means that the question is true, No means that the question is not true, and the Not-Applicable choice means that the participant cannot decide on the question. All of these parts' answers are also analyzed based on predefined eight Jordanian online newspapers websites and in addition to, the use of statistical measures; the Yes/No/Not-Applicable measure which is defined in the methodology chapter. The next tables and figures describe in details all results of this factor and its categories.

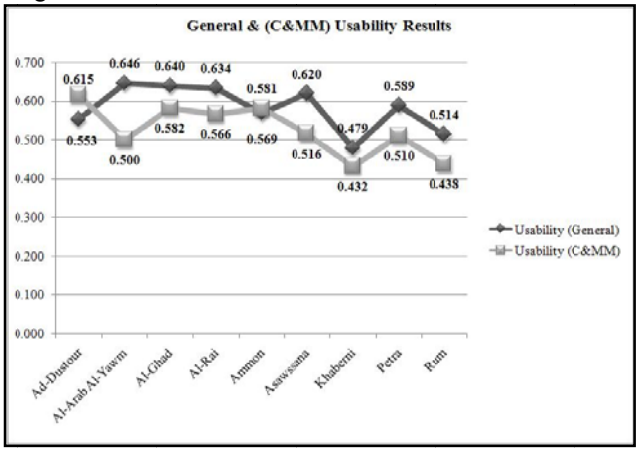


Fig. 5 Usability Rates Results from the C&MM Employees' Point of View

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Table XI describes for each newspaper website: the number of responses and the positive content rate (α Yes) versus the quality level for each of these categories. This table shows that the Al-Arab Al-Yawm newspaper has an excellent website content rate with (0.8571) for the authority category, and in opposite; the least web content rate for the authority category is (0.5667) for the Khaberni online newspaper.

The web design category both Rum Agency for News and Assawsana newspapers also have the highest web content rate (0.7), on the other hand, the least quality rate for this category is for the Khaberni newspaper with (0.2833) and poor level. And for the last category which is the information quality, the Al-Ghad newspaper website has the highest web content rate which is (0.793) and the least quality rate is for the Khaberni newspaper with value (0.4667).

In general, results of the web content factor from the previous detailed table are depicted in Figure 6 which shows a positive web content scale and its corresponding quality content level for all of these eight Jordanian online newspapers websites. This figure shows that all these websites varies from the Good to Moderate web content quality level and the cumulative web content qualitative values range from (0.439) to (0.70).

TABLE IX
WEB CONTENT QUALITY LEVEL FOR THE NEWS WEBSITES

| Newspaper | # of Responds | Web Content | | | | | |
|---|---|---|---|---|---|---|---|
| | | Authority | | Web Design | | Information Quality | |
| | | Cont. Rate | Cont. Level | Cont. Rate | Cont. Level | Cont. Rate | Cont. Level |
| **Al-Rai** | 88 | 0.6273 | Good | 0.6216 | Good | 0.6182 | Good |
| **Al-Ghad** | 54 | 0.6926 | Good | 0.6833 | Good | 0.7930 | Good |
| **AD-Dustour** | 26 | 0.5923 | Moderate | 0.5423 | Moderate | 0.5808 | Moderate |
| **AlArab Al-Yawm** | 7 | 0.8571 | Excellent | 0.6714 | Good | 0.5714 | Moderate |
| **Ammon** | 12 | 0.7333 | Good | 0.5583 | Moderate | 0.5833 | Moderate |
| **Petra** | 4 | 0.600 | Moderate | 0.4250 | Moderate | 0.5750 | Moderate |
| **Rum** | 3 | 0.6667 | Good | 0.7000 | Good | 0.6333 | Good |
| **Khaberni** | 6 | 0.5667 | Moderate | 0.2833 | Poor | 0.4667 | Moderate |
| **Assawsana** | 6 | 0.700 | Good | 0.7000 | Good | 0.7000 | Good |

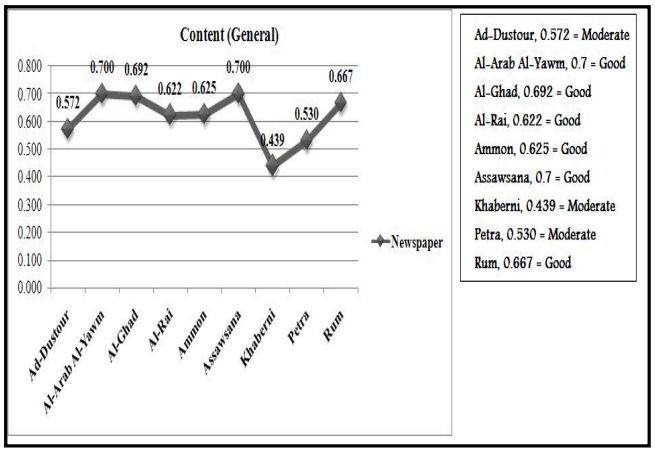



Fig. 6 Web Content Rates and Quality Levels Results

*E. Comparisons*

The first comparison made is to describes the results of the web content factor in terms of two groups of newspapers websites (e-paper, pure online). The second comparison describes if the web content categories form the one of the usability criterion which is the (Content, Organization, and Readability). The results of the comparison aim to shown the usefulness of these websites which includes three level of usefulness: (1) if the website useful for audiences' information needs, (2) if the website is useful for future booking as a future reference, (3) if the website is not worth to visit again.

The first comparison results are shown in Fig. 7 which shows that both the e-paper online newspapers and the pure online newspapers has roughly same positive content rate (E-paper = 64.72% and Pure = 63.33%). In the other hand; Table XII represents both of these two groups which are very useful for audiences' Information needs.

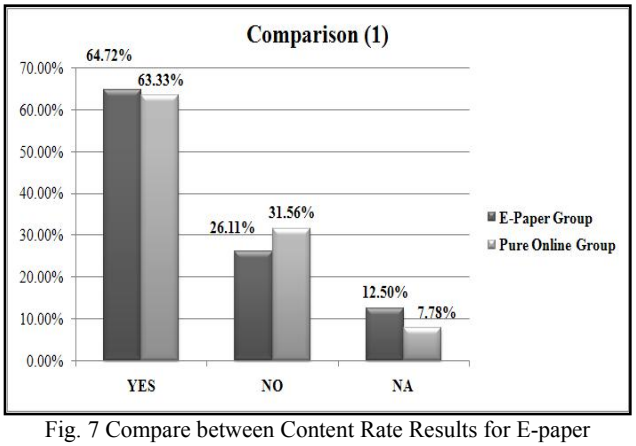



Fig. 7 Compare between Content Rate Results for E-paper Newspapers and Pure-Online Newspapers.

The second comparison results are shown in Figure 8 and Table XIII where Fig. 8 shows that the web content factor results by using the questionnaire testing technique are the same as the content, organization and readability criterion of the usability factor using the same testing technique. Table XII

shows that Al-Rai, Al-Ghad, and Assawsana newspaper websites are very useful for audiences' information needs, while the others are worth to be a future references.

TABLE XII
POSITIVE CRONBACH'S ALPHA COEFFICIENT (A) & THE CONTENT RATE RESULTS

| Groups of Newspapers | α (Yes) | α (No) | α (NA) | Content Rate Level |
|---|---|---|---|---|
| **E-Paper Newspapers Websites** | 64.72% | 26.11% | 12.5% | Very Useful for audiences' Information Needs |
| **Pure-Online Newspapers** | 63.33% | 31.56% | 7.78% | Very Useful for audiences' Information Needs |

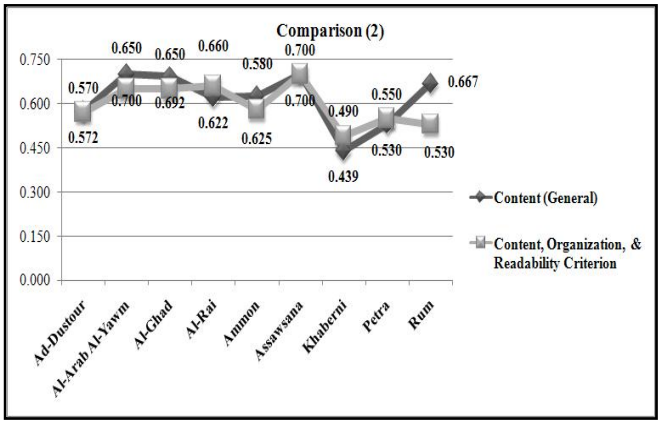



Fig. 8 Compare between Positive Content Rates and Fourth Usability Criterion Results

## IV. CONCLUSION AND RECOMMENDATIONS

This work had one basic objective which is evaluating Jordanian online newspaper websites from based on the two related factors: the usability and web content. The results of the research show that even the usability level of the Jordanian news websites is relatively good (concluded from the audiences responds) the content structure and design of these websites is moderate or not as expected. For example, even that the Al-Rai newspaper website has the largest number of responses it does not have the best results of usability or web content factors.

From the employees of C&MM point of view, the usability level of the eight newspaper websites is less than the results generated except for the Ad-Dustour newspaper website. The Ad-Dostour newspaper website has a good result than expected from the C&MM employees' point of view.

In addition, a general result which is concluded from different point of view is that the Ammon and the Assawsana online news websites from the pure-online group of newspapers have accepted results, moreover the Al-Rai and the Ad-Dostour newspapers websites from the e-paper group of newspapers have relatively accepted results for all assessments used.

TABLE XIII
RESULTS FOR THE SECOND COMPARISON

| Newspaper | PC Rate Level | CORC Qualitative Level | Content Rate Level |
|---|---|---|---|
| **Al-Rai** | Good | Good | Very Useful for audiences' Information Needs |
| **Al-Ghad** | Good | Good | Very Useful for audiences' Information Needs |
| **AD-Dustour** | Moderate | Moderate | Worth Bookmarking for Future Reference |
| **AlArab Al-Yawm** | Good | Good | Very Useful for audiences' Information Needs |
| **Ammon** | Good | Moderate | Worth Bookmarking for Future Reference |
| **Petra** | Moderate | Moderate | Worth Bookmarking for Future Reference |
| **Rum** | Good | Moderate | Worth Bookmarking for Future Reference |
| **Khaberni** | Moderate | Moderate | Worth Bookmarking for Future Reference |
| **Assawsana** | Good | Good | Very Useful for audiences' Information Needs |

*Note: PC = Positive Content, and CORC = Content, Organization, & Readability Criterion.

As a result, different recommendations can be recommended for improving Jordanian online newspapers websites. These recommendations are based on the results and the analysis described in this paper, some of these recommendations are listed below:

- Designing web pages in a manner that allow all content to fit within the window where there is no need to scroll right and left.
- Designers are advised not to use color, images, or text alone to convey a topic or information. They are advised to use a combination of these components and other news objects like sounds and video.
- Designers are advised not to make important images look like banner advertisements or gratuitous decorations. In addition, they should ensure that images on the website do not slow the page download time.
- It is not preferred to use background images within the newspaper websites.
- Ensure that all needed information is available and displayed on the page where and when it is needed. The information should be up-to-date even during local or regional holiday.
- Ensure that unique news listed in one of the newspaper websites are highlighted in a special way different than the whole design of that webpage.
- Make sure that audiences can easily find and contact with the persons in charge of the website and the author of the news via email, or discussion board. Furthermore, ensure that users can easily print and send news to friends via email.

As for future work, the news websites will be evaluated based on some automated tools designed for the purpose of

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websites evaluation. Other possibility for a future work is to perform a comparison between the international newspaper websites and Jordanian ones, in order to eliminate weaknesses and apply strengths of these websites.

## REFERENCES

[1] Xigen Li, (1998), "Web page design and graphic use of three U.S. newspapers", School of Journalism, Michigan State University, Journalism & Mass Communication Quarterly, Vol. 75, No. 2.
[2] Brain S., (2008), "Newspapers recreate their medium", eJournalUSA, http://usinfo.state.gov/journals/, (visited on 2-10-2008).
[3] Nielsen J., (2004), "The need for speed", Usability Week Conference, Available at http://www.useit.com/alertbox/9703a.html.
[4] Lisa S., Barbara W., Marci C., Pamela S. Haines, (2005), "Unraveling the web: an evaluation of the content quality, usability, and readability of nutrition websites", Journal of Nutrition Education and Behavior Vol. 37 No. 6, pp. 300-305.
[5] Tania L., (2003), "Comparing website accessibility evaluation methods and learning from usability evaluation methods", Peak Usability. http://www.peakusability.com.au/pdf/website_accessibility.pdf
[6] Jokela, T., Iivari, N., Matero, J., Karukka, M., (2003), "The standard of user-centered design and the standard definition of usability: analyzing ISO 13407 against ISO 9241-11", Oulu University, Nokia.
[7] Holzinger A., (2005), "Usability engineering methods for software developers", Communications of the ACM, Vol. 48, No. 1.
[8] Tullis S., (1998), "A Method for evaluating web page design concepts", In proceedings of ACM CHI 98 Conference on Human Factors in Computing Systems.
[9] Keevil B., (1998), "Measuring the usability index of your website", In proceedings of the Sixteenth Annual International Conference on Computer Documentation, Canada.
[10] Someren M., Barnard Y., Sandberg J., (1994), "The think aloud method: a practical guide to modeling cognitive processes", Department of Social Science Informatics University of Amsterdam, Published by Academic Press, London.
[11] Jurek K., (2000), "Questionnaires in usability engineering: a list of frequently asked questions", (3rd Ed.), Human Factors Research Group, Cork, Ireland.
[12] Michele K., (2002), "Evaluation, repair, and transformation of web pages for web content accessibility, review of some available tools", In Proceedings of the Fourth IEEE International Workshop on Website Evolution, pp. 65 – 72.
[13] Abdul mohsen A., Ali A. and Mayhew P., (2005), "e-Government website accessibility: in-depth evaluation of Saudi Arabia and Oman", the Electronic Journal of e-Government, Vol. 3, No. 3, pp. 99-106.
[14] Mustafa, S. and Al-Zoua'bi L. , (2008), "Evaluating the usability of Jordanian universities websites: an empirical study", In Proceedings of the 9th International Arab Conference for Information Technology (ACIT2008), Tunisia.
[15] Carina I. and Maria Å., (2007), "Introducing the e-newspaper – audience preferences and demands", In proceedings of ELPUB2007 Conference on Electronic Publishing, Vienna, Austria, ISBN 978-3-85437-292-9, pp. 65-74.
[16] Rusli A. and Kohtieng W., (2008), "Usability measurement of Malaysia online news websites", IJCSNS International Journal of Computer Science and Network Security, VOL.8, No.5.
[17] Jordan Press Foundation, (2007), "Al-Rai – Jordan Press Foundation: An Informative Publication".
[18] Alexa Internet, Inc., (2008), "Jordan- Alexa Top 100 Sites", http://www.alexa.com/ (visited on 30-10-2008).
[19] Jordanian Higher Media Council, (2005), "Content analysis of structural Jordanian daily newspapers and Jordan News Agency (Petra)" (15/6/2005 - 15/9/2005)", Field research.
[20] EETAP Resource Library, (November, 1999), "Evaluating the content of websites guidelines for educators", Environmental Education and Training Partnership.
[21] Thiam C. and SitiSalwa S., (2003), "WebUse: website usability evaluation tool", Malaysian Journal of Computer Science, Vol. 16, No.1, pp. 47-57.



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