THE USAGE AND EVALUATION OF AGROBASED WEBSITES QUALITY BY AGRICULTURE OFFICERS IN MALAYSIA

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Abstract: *The usage of communication technology for the purpose of task and daily activities gives a great impact to society. Therefore, the uses of websites have become one of the mediums that has beeb choosen by society to communicate and get useful information. Thus, a website must be designed based on standard criteria and features as well as quality to ensure convenience and efficiency. It has been observed that website of certain agricultural agencies' still have been criticised due to their failure to play a role in disturbing information to the public. These phenomena gave rise to questions about the use and quality of agricultural websites in Malaysia. Therefore, the purpose of this study is to identify these two aspects in order to determine the usage patterns of agricultural agencies' websites and perception of Agricultural Officers (AO), Agricultural Assistant Officers (AAO) and Agricultural Asisstants (AA) regarding website*

throughout Malaysia. The data was obtained by using self administred questionares. Respondents were officers from Agricultural Department, Wisma Tani Kuala Lumpur and State Agricultural Department Headquarters in Malaysia. The data was analysed using SPSS. Correlation analyses conducted showed significantly positive relationship between the quality of evaluation of agricultural agencies' websites and internet skills. Another significantly positive relationship was showed between the quality of evaluation of agricultural agencies' websites and the frequency of internet access. Meanwhile, correlation analyses also showed a significantly positive relationship between the quality of evaluation of the agricultural agencies' websites and the duration of internet access. Another significantly. Another significantly positive relationship was between the quality of evaluation of agricultural agencies' websites and the frequency of access to these websites. Generally, it is suggested that agricultural agencies involved in this study take the initiative to upgrade the quality of their websites in order to disseminating agricultural information.

Keywords: *Communication Technology, Agricultural extension.*

Introduction

The establishment of agricultural agencieswebsites is imperativeas to disseminate information on agricultural technology, research activities, agricultural seminars, market opportunities, agricultural subsidies, plant diseases, agricultural products, agricultural courses, agricultural agency policies, agricultural practitioners' welfare, and also current issues of the agricultural sector (Ministry Of Agriculture & Agro-Based Industry, 2010).

The government through the agricultural agencies has spent millions of Ringgits to runvarious websites for the purpose of communication and information dissemination in the agricultural sector. In the 10th Malaysia Plan alone, RM 5.2 billion was allocated for the development of information technology. Of these, RM1.6 billion was apportionedto the development of information technology in the agricultural sector (Ministry of Finance, 2012). This proves that the government is determined to employ information technology for country's agricultural sector.

Problem Statement

Agricultural agencies websites are frequently criticized and have been getting unsatisfactory comments from the surrounding community. Ministry of Agriculture & Agro-Based Industry website has been criticized for the outdated content (Berita Harian, March 7, 2017). Moreover, in the agro-journal documentary, there is a demand from the agricultural practitioners for the agricultural agencies websites to be restructured in terms of the content and the design, in order to attract greater attention in promoting the country's agricultural sector (Utusan Malaysia, April 1, 2017). The agricultural agencies websites are seen to be less welcoming for the local agricultural practitioners.

Research questions

1. What is the agricultural agencies websites usage pattern amongst the agricultural officers in the country?

2. How does the quality of the agricultural agencies websites appeals to the agricultural officers?

Research objectives

In general, this study is to identify the use and the evaluation of agricultural-based websites by Malaysian agriculture officers.

The specific objectives of the study are to:

1. Identify the quality evaluation on the agricultural agencies websites by the agricultural officers.
2. Identify the correlation between internet literacy and the quality evaluation of the agricultural agencies websites.
3. Identify the correlation between the frequency of internet use and the quality evaluation of the agricultural agencies websites
4. Identify the correlation between the extent of internet use and the quality evaluation of the agricultural agencies websites.
5. Identify the correlation between the frequency of using the agricultural agencies website and the quality evaluation of the agricultural agencies websites.

The Importance of the Study

The use of agricultural agencies websites demonstrates that it has the potential to have knowledgeable and highly-skilled agricultural practitioners in the field of information technology. Hence, the agricultural practitioners in the country could manipulate and utilize the technology, to be engaged in the era of globalization and country's mission towards knowledge-economy (k-economy).

For country's agricultural sector, the use of information technology as a medium of information dissemination appears to be in line with the development of other economic sectors such as manufacturing, assembly, industrial and tourism sectors. The existence of agricultural agencies websites in the country is seen to assist agricultural practitioners, especially the farmers, the fishermen and the breeders in obtaining information on agricultural activities and current developments of the country's agricultural sector.

Research methodology

Questionnaires were used to collect data. Drop and pick method was employed, except for those in Kuching and Kota Kinabalu agriculture offices, of which the questionnaires were mailed to them. The location of the study was the state agriculture headquarters throughout Malaysia

(Kuala Lumpur, Shah Alam, Seremban, Bandar Melaka, Johor Bahru, Ipoh, Bkt Mertajam, Beseri. Telok Cengai, Kuantan, Kuala Terengganu, Kota Bharu, Kuching and Kota Kinabalu).

A total of 731 respondents were chosen through Stratified Random sampling. Of the amount, 310 respondents which were consisted of agriculture officers, assistant agriculture officers and agriculture workers. The data were analyzed using the Statistical Package for Social Science Software.
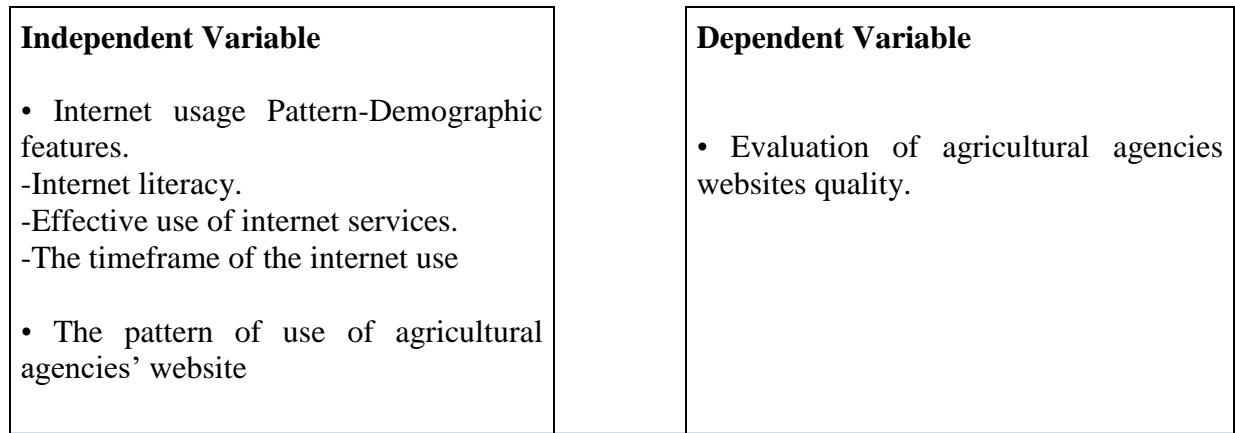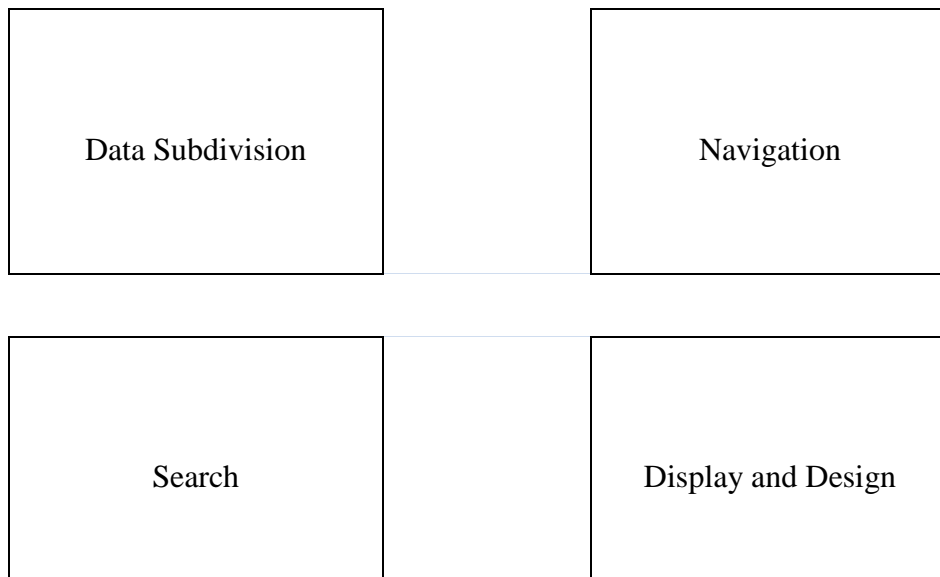
Independent Variable • Internet usage Pattern-Demographic features. -Internet literacy. -Effective use of internet services. -The timeframe of the internet use • The pattern of use of agricultural agencies' website	**Dependent Variable** • Evaluation of agricultural agencies websites quality.

Figure 1: Research Framework

Research Instrument

Data Subdivision	Navigation

Search	Display and Design

Figure 2 : Four Pillars of Architecture Information

Data subdivision referred to the data and content of the website. In assessing a website, the content reflects to that include the content utility, information, subject specification, reliability and syntax of content (Moustakis V. S., 2004). The utility means the website usability, trustful and up to date information. Usability of the website referred to the website ease of use by the visitor (Abbas, M., 2014). The degree of website trustfulness and completeness of information, reliability and syntax of content on the website, can affect the visitor satisfaction wish will turn effect on visitor intention to use the website again (Balanche, 2011).

Navigation referred to degree of ease of use and understanding the website structure, availability and validity of links, when the user moving around or when user open the website. The website must have a sense how to make the user easily understand the structure and links of the website (Moustakis V. S., 2004). The design must be clear or well placed the link and easy to see and read. Search referred to the degree of availability, reliability and readiness of internal search function on the website (Bernard J., 2006). Searching information using keyword they need by using a search engine or links that embodied in the website (Booth D., 2009).

Display and design referred to the website visual characteristics, interface, design, the display of information, the use of visual communication or characteristics on the website (Hassan L., 2011). In this paper, researcher looks on the degree of attractiveness, appropriateness, color, image, media, and text. Attractive design quality referred to website innovative design, aesthetics effects, and emotional appeal. Appropriate design referred to the use of appropriate visual and layout design on the website and visual balance. Color referred to using an appropriate color, in the background, layout, button, and text. Image and media referred to number, size, and availability of providing alternative image or visual or media for user to quick understanding the information. Text referred to style or type of typography, readable, appropriate size, heading, and breathing space.

Hypothesis

There are four hypotheses for this study:

H1: There is a significant correlation between the frequency of using the internet and the evaluation of the quality evaluation of the agricultural agencies' websites.

H2: There is a significant correlation between the internet literacy the quality evaluation of the agricultural agencies websites.

H3: There is a significant correlation between the extent of internet use and the quality evaluation of the agricultural agencies websites.

H4: There is a significant correlation between the frequency of using the agricultural agencies website and the quality evaluation of the agricultural agencies websites

Result

The results showed that almost 2/3 of the respondents were men. In terms of age, the respondents between the ages of 22 - 30 were the highest at 31.1%. The average age of the respondents is 37.1 years-old. Meanwhile, in terms of ethnic groups, Malay respondents are the majority in the study, which is 91.0%, and 84.4% of the respondents were married.

For their academic qualifications, the majority of 54.1% of the respondents are certificate holders. For the extent of service in the department or the agency, the majority of the respondents (51.9%) has served less than 10 years. The average service extent of the respondent is 11 years 9 months. As for earnings, the majority of the respondents (37.8%) earn less than RM1500.00. The average estimated earnings of the respondents is RM2034.25.

In general, it can be concluded that computer literacy among the respondents is at a satisfactory level. Nevertheless, from the total of 270 respondents, 0nly 163 respondents have attended any agricultural course. It is a poor number because each respondent should participate in courses related to the field of their work, based on the practices of the public agriculture sector. The study also found that all respondents are internet literacy. The most widely used internet services by respondents are the use of email, followed by the use of file transfers, and to surf the internet for information.

However, the findings also found that there were respondents who had been using the internet for banking activities, payment transactions and e-commerce trading activities. Although the percentages are relatively low, this indicates a positive indication that banking transactions and internet payment transactions as well as the e-commerce trading activities have become increasingly popular among the public. The use of agricultural agencies websites shows that the use of the agricultural websites agencies is not at a satisfactory level.

From the 27 websites of the listed agricultural agencies, the top ten websites belong to Department of Agriculture Malaysia, MARDI, FAMA, Farmers' Organization Board, www.tani.net, Bank Pertanian Malaysia, BERNAS, Department of Fisheries, Department of Veterinary Services, and Sabah Agriculture Department.

Interesting enough, the agricultural e-commerce websites, *www.tani.net* and *www.agrobazaar.com.my*were respectively ranked fifth and eleventh along with other agricultural agencies websites. This also shows that e-commerce trading activities on the internet are increasingly gaining popularity among respondents. This is important for realizing the government's desire to amplify e-commerce activities in the agricultural sector.

The findings also found that the level of website quality of agricultural agencies was at a moderate level. The features that get the top ten stages are logos, provide e-mail facilities, have links, provide contact addresses, use appropriate word size, trademark, easily accessible, suitable bold words, and use of italics for appropriate items.

These features should be maintained and enhanced to suit the current needs of communication technology. Nevertheless, the bottom ten features in the table to evaluate the quality of the website features are providing an organizational location map, having a fast download, having interactive features, providing a summary of the document, search engine that can provide various information, provide chat rooms, regularly updated, have high access speed, website navigation that constantly informs the locations within the website, and provides advanced search.

The findings also found that the agricultural agencies websites' specialties are the links on the websites. It is undeniable that this privilege has a solid foundation as it is common for an agricultural website in the country to have links to the agricultural agencies.

Furthermore, the privileges that attracted the respondents the most of the agricultural agencies websites are the graphics and the highlighted current issues. The graphic privilege is clearly seen as the graphics that often adorn the content of the agricultural agencies websites are of great interest and high quality. Current issues that are frequently posted on the agricultural agencies websites are also very relevant to the needs and the development of current agricultural sector.

Among the weaknesses of the agricultural agencies web sites were the difficulty of accessing, outdated content, and inappropriate size of words. Accessing difficulties are a common phenomenon of agricultural agencies websites, especially the Department of Agriculture Malaysia and also websites that have links to the site. According to sources of ICT management at the Department of Agriculture, this is due to the main browser (server) that is unable to accommodate a large number of visitors at a certain time.

The content of the agricultural agencies websites was also found to be outdated and caused visitors to be bored with the information display that was quite old. This phenomenon has also been criticized by agricultural practitioners in newspapers and local magazines. The inappropriate size of the word also affects the websites 'display, which sometimes found to be too small and too large to be used, compared to the standard text size (size 8-10).

The most frequent suggestions were to post more agricultural current issues on the agricultural agencies websites. This is particularly relevant as keeping track of the current issues of agriculture is crucial to stay well-informed on the country's agricultural sector. In the meantime, many suggestions are also made so that the agricultural agencies websites are constantly updated. This is particularly relevant to the demands of the agricultural practitioners who have to be stay updated in the agricultural sector. Suggestions for using appropriate colors are also much to suggest where the appropriate use of colors is very important for the suitability of agricultural websites.

Recommendations

From the research findings, several relevant proposals have been submitted to further streamline the use of ICT among agricultural agencies in the country.

1. The findings show that the use of agricultural agencies websites in Malaysia received a cold response from respondents, especially for the purpose of obtaining updated information in the country's agricultural sector. Nevertheless, the existence of e-commerce websites for the country's agricultural sector is also seen as 'enliven' the agricultural sector of the country. Therefore, the emphasis is on the promotion of the agricultural agencies websites in the country, including the e-commerce website of the agricultural sector to get more attention among agricultural sector practitioners. This is in line with the government's intention to realize the concept and use of e-farming in the country.

2. The findings also found that the quality of the agricultural agencies websites was at a moderate level. However, this quality should be improved from time to time in order to improve the quality of the website of agricultural agencies in a better direction and be able to attract the public to browse. It is also recommended that agricultural agencies make the four-stroke model of information architects as one of the guides to further enhance the quality of their website's quality.

3. As suggested by the respondents, the agricultural agencies websites should have more consideration of the current issues, updated content, colors, comprehensive, user-friendly, interacts, and user-friendly features. These proposals are highly regarded as it is the key requirement for the agricultural practitioners to surf the agricultural agencies websites. The weaknesses in the websites of agricultural agencies such as access difficulties, unmodified content, inappropriate size of words, interactive features, designs and less information should be addressed promptly so that they can further increase the use of agricultural agencies websites, and thus provides a positive image of the communication technology in the agricultural sector in the country.

4. Agricultural agencies are also advised to regularly organize communication technology courses to provide adequate exposure to staff in line with the current technological developments in order to be effectively managed in the country's agricultural sector.

5. The ease of use of computers and the internet to subordinate staff such as agricultural assistants should be further expanded as staffs at this stage have less access to communication technology facilities at relevant agricultural agencies. This is especially important in promoting the communication technology of the country's agricultural sector as agricultural assistants are also seen as playing an important role in farming fields, fishermen and breeders.

Conclusion

The usage and the quality of the agricultural agencies websites are crucial in disseminating communication technology in the country's agricultural sector. The knowledge and dissemination of the latest information through the agricultural agencies websites is indispensable to agricultural practitioners. Through the agricultural agencies websites, the agricultural practitioners are able to keep up with the current developments and issues of the agricultural sector much easier, and information can be reached at any time regardless of time and geographical boundaries. All the information on the agricultural sector can now be obtained quickly through the internet. In line

with time and technology, communication technology, the website has now also become a place of reference and a medium of information retrieval by the public. Therefore, a website should have a quality feature to ensure its convenience in terms of its use.

References:

A. B. Deraman,& A.K. ShamsulBahar (2000). *Bridging the farming community into the Internet age: A case study*. Informing Science, 3 (4), 207-214.

Abi Hassan (2002). *Aplikasi teknologikomunikasidanmaklumat (ICT) dalam sector pertanian*.Pembentangan kertas kerja di seminar memacu sektor pertanian Malaysia.Pusat PerdaganganDunia Putra Kuala Lumpur.

Abbas, M., and Erpi, A., (2014). *Quality of Instruction and Usability of ASTRO Tutor TV Lessons and their Effects on Perseverance and Frequency of Use.* University Sains Malaysia.

Ahmad Mahzan Ayob (1990). *Self-reliant farmer's organization in the context of changing economic scenario in Malaysia.* Proceedings of the solultion finding symposium on measures for self-reliant farmers'organizations, Kuala Lumpur, Farmers' Organization Authority Malaysia.

Bahaman Abu Samah and TurimanSuandi (1998). *Statistics for communication research.* Institute for Distance Education and Learning (IDEAL), Universiti Putra Malaysia.

Bahiyah Omar (2003). *Computer utilization at farmer's organization.* Tesis Master, Universiti Putra Malaysia, Serdang.

Bernard J., and Booth, D., (2006). *A review of methodologies for analysing websites. Pennsylvania State University,* USA.

Drew Haywood (1997). *Four hundred twenty-nine million people worlwide have internet access* http://www.eratings.com/news/20010611.htm. (dalamtaliandandiaksespada 2 Februari 2004).

FairuzHashim (2004). *ICT sector pertanian dahulu dan kini*.Ruangan agro jurnal.Utusan Malaysia 1 Jun 2004.

Frey L.R. Botan C.H. & K. G. R. (2000). *Investigating communication: An introduction to research methodology*: Pearson education company: USA (240-241)

Gerry McGovern and Rod Norton (2002). *The four pillars of information arhitecture. Gaining competitive advantage through high quality web content.* New York: McPhearson

Goodhue, D. L., Thompson, R. L. (1995). *Task technology fit and individual performance.* MIS Quarterly, 19(2) (dalamtalian, diaksespada 6 Mei 2004, daripadaEbscohost database.

Hassan L., and Abuelrub, E., (2011). *Assessing the quality of the website.* Applied Computing and information journal, Vol. Issues 1, Pages 11-29. King Saud University.

Moustakis, V. S., Litos C., Dalivigas, A., and Tsironis, L., (2004). *Website Quality Assessment Criteria.* Ninth International Conference on Information Quality (ICIQ-04). Department of Production and Management Engineering, Technical University of Crete, Greece.