Factors Affecting the Development and Management of Bilingual Web Portals

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Abstract: In recent years, there has been an interest among organizations and institutions to develop bilingual and multilingual web portals that provide their stakeholders with access to content, services and online resources. This study reports findings regarding the development and management of a bilingual web portal that provides content and services for an academic institution in Saudi Arabia (Arabic and English). This study adopts a qualitative research approach for data collection and analysis. Semi-structure interviews were conducted with five people who were involved directly with the bilingual portal development and management. Then, the data were analysed using coding and categorising to identify common themes among the participants. The findings indicate that developing and managing a bilingual web portal represents a challenge to institutions and it has several implications such as resources allocation, translation issues, quality assurance, content currency and some issues related to web portal usability. Finally, the paper provides some recommendations and suggestions for further research.

***Index terms-* Bilingual web portal, Content and information management, Higher education, Saudi Arabia.**

I. INTRODUCTION

In today's modern world, Information and Communication Technology (ICT) in general and the Internet in particular, is having a strong impact on business activities and operations [1]. In government institutions and agencies, the use of ICT and the Internet has become imperative to support business and organizational daily operations, and they must use the web technologies to respond to stakeholders' ongoing demands and requirements [2]. In addition, it has become widely acceptable that government institutions and agencies to have online presence on the web and to provide content and services to their stakeholders.

The World Wide Web offers great opportunities to reach a wide range of audiences who speak different languages at relatively low cost compared to traditional media [3].

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The provision of content, information and services in different forms and types (text, images, video, services and applications) is one of the most important services provided by government institutions and agencies, as many of them tended to provide bilingual and multilingual content and services. Effective management of online content, information and services provided in more than one language requires many resources, tools and mechanisms. This topic has attracted the attention of many researchers who study multilingual and multicultural websites [2, 4, 5, 6, 7, 8]. However, most of this research has focused on the usability design issues for multilingual and multicultural websites. In addition, the majority of such studies were conducted from a quantitative perspective, which suggests that there is a need for more qualitative research on this topic. Furthermore, most of such research focused on users of websites, neglecting the views of the people who develop and manage bilingual and multilingual websites. The aim of this paper is to investigate the factors affecting the development and management of bilingual content on web portals. It reports a case study from an academic institution in Saudi Arabia.

The rest of the paper is organized as follows: in the next section, it reviews previous research and studies concerning the issues of bilingual and multilingual websites. Then, in section 3 it details the research methodology that was used and describes how the data were collected and analysed. This is followed by section 4 which reports the findings and discusses them in the light of the literature and related work. Finally, section 5 presents the conclusions from this study and provides some recommendations.

II. LITRUTRE REVIEW

The global and dynamic nature of the world wide web and the differences among cultures and internet users across the world suggest that there is no way to have a perfect single design that fit for all possible users (universal usability or inclusive design) [5]. This is because at the present technological and financial circumstances facilitate large population changes and multilingualism has become an issue that all countries will have to deal with [8]. As a result, there has been an increasing demand for bilingual and multilingual websites provided by institutions, organizations, companies as well as government agencies websites [4]. This is due to the fact that multilingual

websites play a strategic role in the quality and effectiveness of the services and information provided by institutions to internet users [4].

A bilingual or multilingual website can be defined as the one that is provided and presented by more than one language, and to make it available, accessible, usable and acceptable to certain language users [9, 10].

The literature on the factors that affect the development of bilingual and multilingual websites has attracted the attention of many researchers. For example, Al-Badi and Mayhew [5] proposed a framework for designing usable localised business websites. The author argue that cultural background and users' perceptions influence their preferences and hence the acceptance of online interfaces. In addition, navigation, layout, interaction, graphics and colors were important elements in designing and developing a localized website.

Al-Sedrani and Al-khalifa [7] investigated design considerations for the localization of Arabic E-commerce websites in Saudi Arabia. They used website evaluation as the main method. The research shows that content, symbols, pictures, colors, layout and language affected the localization of the websites studied.

Translating content from one language into another in the same website is another important issues that need consideration. According to Cunliffe et al [11] and Forger [12] translation issues were one of the main difficulties in the creation of bilingual and multilingual websites. Similar findings were reported by He [4] who studied language barriers and challenges on library websites.

Makki and Leppert [2] investigated factors of usability design for multilingual and multicultural in Japanese websites. The study found that cultural differences including language differences can affect websites design and usability and such issues cannot be ignored. In addition, the study concluded that when an agency has to provide a bilingual or multilingual website, it is convenient to design a separate localized site. Furthermore, as the Web continues to gain popularity around the globe, internet users will demand content and services written in their own language for ease of access and communication.

Hillier [9] suggested a model for multilingual website usability. The model consists of three elements including language, cultural context and usability. The author argue that culture has an influence on the way we use communications, meanings, languages, artistic expression or conduit of emotion, all of which have impact on the context of a website design presentation.

Content currency (up to date content) is another important issue for bilingual and multilingual websites [8]. The nature of such websites is dynamic, thus; it requires the content and information to be updated simultaneously, so that users have the same content at the same time in different languages.

Having examined the literature on the factors affecting bilingual and multilingual websites, it can be concluded that it has focused on the usability design issues for multilingual and multicultural websites, and it was mainly conducted from a quantitative perspective. The following section describes the research methodology.

III. RESERCH METHODOLOGY

This study adopts a qualitative research approach. This approach focuses on understanding and meanings in data collection and analysis [13, 14]. In qualitative research, there are a number of methods than can be used for data collection such as interviews, document analysis and observation. For the purpose of this study, the semi-structured interviews were used to collect the empirical data. Interviews are one of the most widely used methods in qualitative research [15]. They allow researchers to get access to the interpretations that interviewees have regarding the phenomenon under investigation. Semi-structure interviews (face-to-face) were conducted with five people at the university who were involved directly with the bilingual portal development and management. Using a digital recorder, interviews were recorded and each interview lasted between 40 and 45 minutes. Then, all interviews were transcribed using Microsoft Word, and become ready for analysis. The data were analysed using coding and categorizing techniques. The aim of data analysis in qualitative research is to prepare, reduce, summarise and organise the data through coding and categorising to identify common themes and issues among the interviews. Each interview was analysed individually and then the researcher did cross-interview analysis to develop a whole understanding among the five participants. Based on that, the researcher was able to identify several factors related to the development and management of bilingual content on web portals. The following section reports the findings and discusses them in the light of the literature and related work.

IV. RESULTS AND DISCUSSION

The findings show that the university provides content, information and services in two languages: Arabic and English (a bilingual portal). This is because English is the second most widely used language in Saudi Arabia and some universities (included the university studied) teach some courses and programmes in English. Moreover, the university has many foreign staff and academics who only speak English. Thus, the university is committed to providing them with content, information and services in English. This has an impact on managing the bilingual portal and its content, information and services. A project manager stated that: "*We have the portal in two languages Arabic and English... We have to have good qualified people who speak two languages and need to have a strategy for translation... Add to this, you have to provide quality content for users in both languages. All of these cost us money, effort, time, and resources. Providing a bilingual*

portal is a very labour intensive and it will remain problematic for us".

Another interviewee described this issue as follows "*We have to provide the service in Arabic and English... Having English as a second language requires resources, qualified people for translation, policies for the translation process... This will remain a challenging problem for long time*".

Another participant described how the provision of a bilingual portal affects managing the content: "*Since we have to provide a bilingual portal, this issue remains a major concern for us. We need to have several bilingual staff and the quality of the translated content must be equivalent to the Arabic one...We don't have effective tools for translation. Although we can use automatic translation software products, in many cases these do not produce useful meaning and translation.*

The portal manager at the university describes how the design of the bilingual portal affect its usability and that is due to cultural differences. He said "*We provide the service in Arabic and English... and you know that Arabic is completely different from English and this is due to cultural differences. Therefore, we have to consider how the portal looks like in both languages and design it from different perspective'.*

In addition, some documents related to the project showed several issues and challenges regarding the portal development and management such as managing the bilingual content, translation issues, transferring the content from paper-based formats to electronic formats, data profiling and cleansing and content upload and migration of data.

The findings indicate that providing a bilingual web portal represented a key challenge to the institution studied and still remains a problem, and has several implications on managing the web portal and its content, information and services. First, it requires many resources to be allocated. For instance, qualified staff speaking both languages. Second, there is a need for translation policies, standards, tools and applications. Prior research found that translation issues were one of the main difficulties in the creation of bilingual websites [11, 12]. Third, there is a need for quality assurance of the content being delivered in more than one language, in order to ensure that content is equivalent and has the same quality in both languages. Previous research revealed that content quality is one of the most important factors for the success of IS, particularly in the context of web based information systems [16, 17]. Fourth, the nature of institutional portals is dynamic, thus; it requires the content to be updated simultaneously, so that users have the same content at the same time in both languages. This seems to be very challenging. Fifth, there is an important issue related to users who use bilingual websites. Research has shown that cultural differences between different language users can affect the design of websites and their content [11, 18]. There is a significant difference between Arabic and English languages in terms of their structures,

syntax, grammars and morphology. Therefore, these issues may affect how the content is managed, presented and delivered to users. Finally, what has been mentioned requires effort, time and money, and are significant additions to the workload of portal teams. This is an important finding that is not reported in previous work with relation to portal implementation in organisations, particularly in universities. Although there are some studies on the development of bilingual websites [11, 12, 18, 19, 20] these were not on enterprise portals. Table 1 provides a summary of the main findings.

TABLE I
Issues related to the development and management of a bilingual portal.

Main issue	Description
Resources allocation	The need for time, effort, money and staff.
Translation policies	The translation policies, standards, tools and applications.
Quality assurance	Ensuring that content is equivalent and has the same quality in both languages.
Content currency	Updating content on both versions.
Design of the bilingual portal	Different from Arabic and English requires different design of the bilingual portal and its usability.

V. CONCLUSION

In conclusion, it can be said that universities who provide bilingual portals may find it difficult to manage, support and handle the content, services and resources. This is a significant finding and it raises two main issues. First, designing an effective bilingual portal is a challenge, beyond those that exist for a single portal and it requires an adequate information architecture [11]. Second, universities that provide a portal with more than one language especially in developing countries should address this issue and pay particular attention to it from the outset of the project, as this requires significant overheads [11]. Finally, effective mechanisms should be put in place to address this issue. As the content, services and resources within the portal will grow over time, this issue will become more significant.

This study also has a number of limitations. First, although a qualitative approach was considered to be appropriate for the purpose of this study, it is important to mention that the results from the qualitative data were difficult to generalise to other populations. This requires further investigations by employing quantitative methods based on the findings to study all the universities in Saudi Arabia, in the public and private sector. Furthermore, this study is situated and bounded in a specific, academic, context. Thus; it would be appropriate to study other contexts, sectors and industries. Finally, this study is restricted to a specific country, Saudi

Arabia. This research is not aimed to provide results that can be generalized; therefore, it would be convenient to study other countries with similar or different characteristics to compare the issues related to the development and management of bilingual and multilingual websites and web portals.

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