

An interactive alumni Web site on the Cloud to enhance proactive public relations

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ABSTRACT: The alumni Web site on the Cloud created by the College of Industrial Technology at King Mongkut's University of Technology North Bangkok (KMUTNB), Bangkok, Thailand, is an interactive portal for both the College and the alumni to publicise relevant information in an instant manner. Hence, the Web site is also being used for communications related to the current situation. A study on the Web site's usage, its efficiency and user satisfaction has been undertaken. The results indicate the Web site has been used by the alumni as intended, both internal and external users, and system administrators. Specifically, it was found that the overall efficiency of the Web site was at a high level (mean = 4.45, SD = 0.50), and also the overall satisfaction in terms of design (mean = 4.38, SD = 0.74) and function (mean = 4.39, SD = 0.72) were highly rated. It appears that the Web site fulfils the main goal of this development that is to enhance the exchange of relevant information, and thus maintaining a close relationship with the College.

INTRODUCTION

In the 21st Century, educators are particularly challenged when facing younger generations, as those generations are ICT savvy and exposed to diverse information sources. The use of ICT in education provides students with more learning possibilities in terms of content, methods and access [1].

Students mainly use the Internet for interactive asynchronous events, including social networks, e-mail, discussion forums, on-line chats, etc [2]. This results in the sharing of knowledge through the Internet network, known as *social network*, for example, in the form of face-to-face multimedia in which users can post comments or interact with each other anytime and anywhere. In that way, they continually disseminate and share information and knowledge within their networks, and also general public.

The modern information society has gone beyond the framework of information processes and, with the development of information and communication technologies, has gradually grown into a digital society [3]. Information technology has evolved in a rapid manner and has become ubiquitous in everyday life and across generations. It has also been used in a variety of professional fields, for example, to enhance work performance, quickly communicate with clients and other users, and to make information more accurate, more reliable and easily accessible. At present, the utilisation of information technologies is changing the way of life of everyone in society. The changes in information technology usage have also encouraged various institutions and industries to adjust their operations [4] by applying and making the ultimate use of technology.

Interactive media is a kind of media that can be applied in educational instruction management to help learners understand the lessons better. The interactive contact with learners through computer technology and communication technology has enabled this particular application. Learners can learn independently and control the work on their own. The media support real-time interactions and results assessment.

Wannapiroon et al said:

...Interactive learning is an approach to teaching and learning that focuses on various ways in which learning activities can interact with learners. One of the key components of interactive learning is information and the design of teaching materials to attract learners, creating a greater desire to learn. Students can prepare for class by interacting with provided resources to reduce lecture time and allow more engagement in class [5].

Therefore, an interactive learning model based on e-learning is needed in on-line instructional design [6].

Cloud learning is a real-time on-line technology that take place on the Cloud and is not limited to any specific computer. It is an application of Internet-based computing technology in instruction management in which learners can learn by themselves anywhere and anytime, and with the aid of the tools that allow instructors to manage their classes through cloud service providers [7-9].

Okai-Ugbaje et al found out that cloud computing provides many benefits for instruction management, including flexibility, convenience, and reduction of time and resources required for planning [10]. This technology also allows learners to easily access the content at the time and place convenient to them.

Public relations through media have a wide scope and often require a complex support system. Proper relations between organisations and the public can help promote the leadership and image of both organisations and individuals. Communication is an essential element in business and it plays an important role in building good relations between the organisation and the target group.

Based on the above literature review, it seems evident that information and communication technology plays a vital role in daily life, and it is especially important in public relations taking place in a digital age. Proactive communication is essential as is the ultimate use of information technology to respond to the current situations in the world. It applies to all sectors, including education, hence the idea to develop an interactive alumni Web site on the Cloud for the College of Industrial Technology at King Mongkut's University of Technology North Bangkok (KMUTNB), Bangkok, Thailand.

The aim of this development was to create a communication platform for publicising news and information in an interactive way.

RESEARCH OBJECTIVES AND HYPOTHESES

The specific objectives of this research were to:

- O1: Create a conceptual framework for the interactive alumni Web site on the Cloud.
- O2: Based on the framework, design the Web site.
- O3: Develop the Web site according to the conceptual framework and the design, with special emphasis on enhancing proactive public relations.
- O4: Assess the usage, efficiency and satisfaction of the Web site.

The hypotheses of this research were related to the results of the Web site development and were as follows:

- H1: The efficiency of the interactive alumni Web site is high.
- H2: User satisfaction is high.

RESEARCH METHODOLOGY

This research was concerned with the design, development and assessment of an interactive alumni Web site on the Cloud to enhance proactive public relations.

Participants

The participants in this research were selected by means of purposive sampling and included: 1) ten experts specialised in the field of Web application development from different institutions in Thailand; and 2) forty-five users including alumni, current students and personnel of the KMUTNB.

Data Collection and Analysis

In order to enhance proactive public relations with alumni and other stakeholders, an interactive alumni Web site on the Cloud had to be developed and evaluated using two forms: one to assess the efficiency of the Web site, and another one to gauge the users' satisfaction. The collected data were analysed using standard statistical measures as presented below.

Methodology

The research methodology was based on an instructional design model including five phases: analysis, design, development, implementation and evaluation (ADDIE model) [11] and the software development life cycle (SDLC) technique [12].

Considering the ADDIE model and the SDLC technique, the following stages were involved in the development and evaluation of the alumni Web site:

Stage 1: Synthesise the conceptual framework of the proposed interactive alumni Web site.

At this stage, a literature review was undertaken to investigate various aspects of the proposed development, including materials related to Web-based instruction [13-15], user experience design [16][17], interactive learning [5][6], cloud learning [7-10], proactive public relations [18] and satisfaction. Based on the literature review, specific information was identified for a conceptual framework of the proposed development and for its evaluation.

Stage 2: Design the conceptual framework of the Web site on the Cloud.

At this stage, the framework was actually designed. It included a structure diagram to depict the structure and specific elements of the proposed Web site, and a use case diagram to envisage how the user will interact with the site.

Stage 3: Develop the Web site on the Cloud.

Based on the framework, and considering the concepts and theories of user experience in the design and development of Web sites, the proposed Web site for alumni and other stakeholders was developed at this stage. The ADDIE model was particularly useful, and user behaviour patterns, potential problems, software solutions, etc, were addressed in more detail during the development. Web-based instruction design principles were followed, and the site was built on the SDLC approach to ensure low cost, but high quality outcomes.

Stage 4: Assess the usage, efficiency and satisfaction of the developed Web site.

In this stage, purposive sampling was employed to select appropriate number of experts and users. As a result, ten experts specialising in the field of Web application development from different institutions were engaged, and 45 users including alumni, current students and personnel from the College of Industrial Technology, King Mongkut's University of Technology North Bangkok.

The research methodology summarised in four stages is depicted in Figure 1.

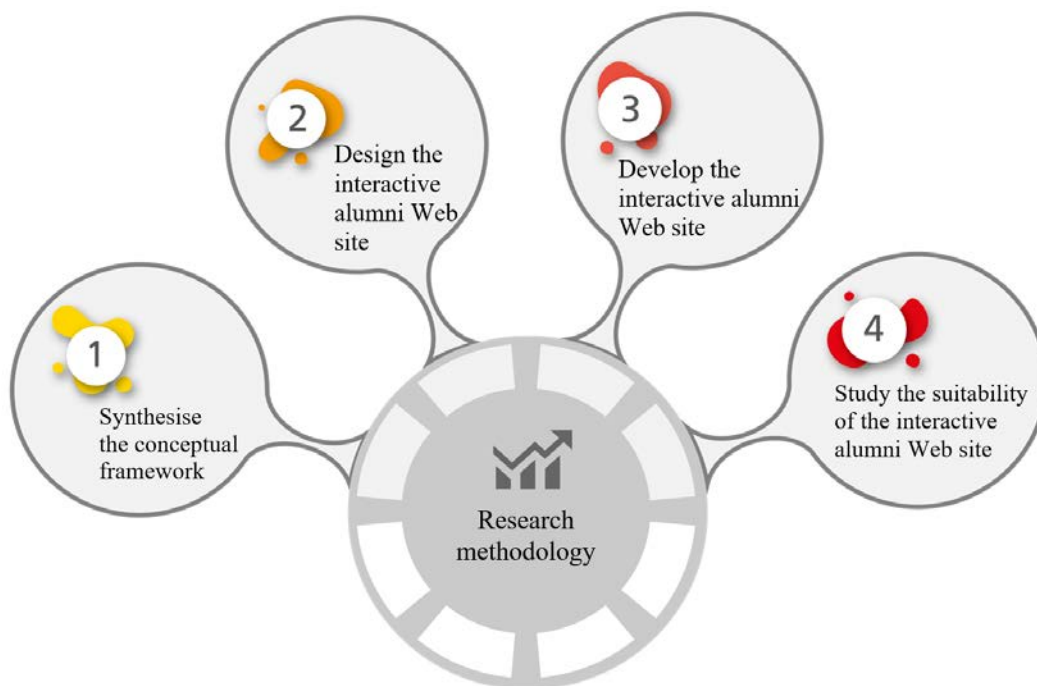


Figure 1: Research methodology.

RESULTS

The results of the alumni Web site are presented below according to the conceptual, design, development and assessment stages.

1. Conceptual framework:

The conceptual framework, as indicated earlier involved a literature review and a thorough analysis of the reviewed documents leading to a synthesised view of the proposed development.

Figure 2 illustrates the conceptual framework and the key concepts of this development.

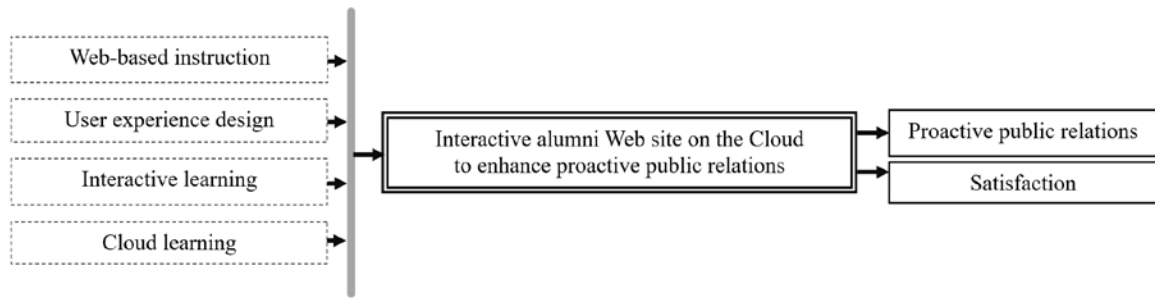


Figure 2: Conceptual framework.

2. Design

In the design stage, particular emphasis was placed on the structure and the elements of the Web site. Figure 3 depicts how the potential user, including the internal and external user and the administrator, may interact with the Web site.

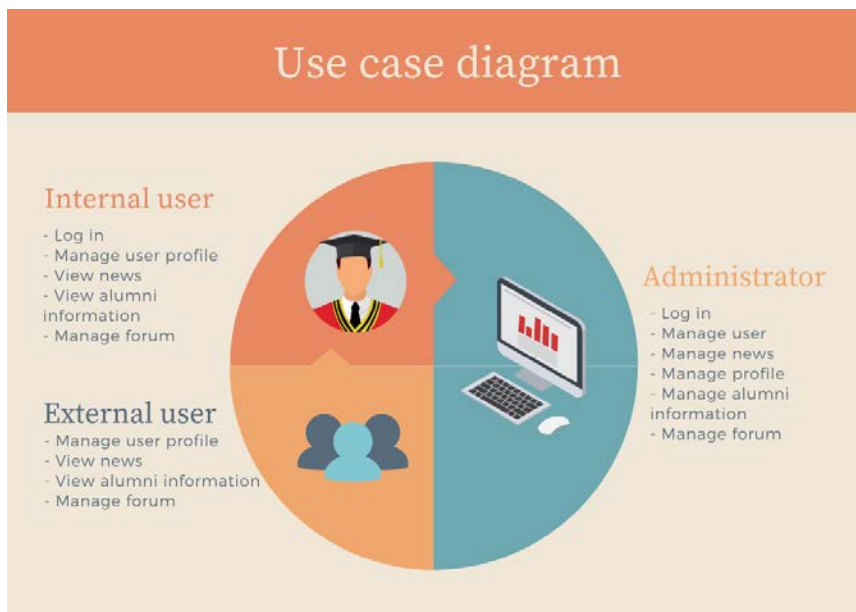


Figure 3: Use case diagram.

During the design phase, various user requirements were analysed. Basically, two main groups of users were identified: 1) system administrators who can log in to the system and are authorised to manage news, document files, users, profiles, alumni information and forums; and 2) users, including internal users, e.g. alumni, current students, staff and instructors, all of whom, either were or are directly involved in various functions of the College, and can log in to the system to manage user profiles, view news, view alumni information and manage forums; and external users who have no close relation to the College, but can still manage user profiles, view news, view alumni information and manage forums.

The structure diagram of the Web site is shown in Figure 4.

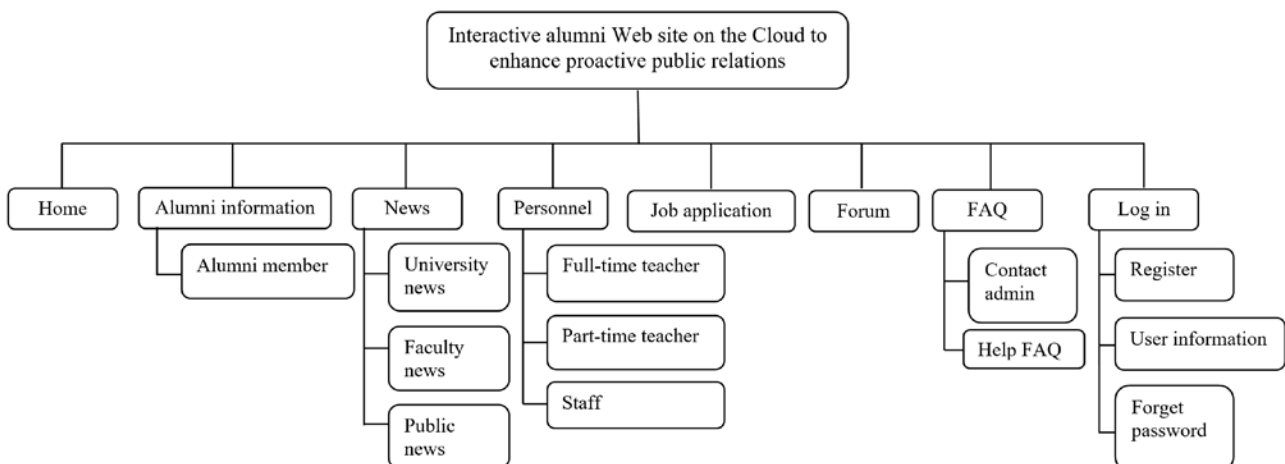


Figure 4: Structure diagram.

Figure 4 illustrates the structure diagram of the Web site, which consists of eight menus, i.e. home, alumni information, news, personnel, job application, forum, FAQ and log in. Some of the menus above include submenus; for example:

- 1) news has three submenus: University news, faculty news and public news;
- 2) personnel has three submenus: full-time teacher, part-time teacher and staff;
- 3) FAQ has two submenus: contact admin and help FAQ;
- 4) log in has three submenus: register, user information and forget password.

3. Development

The Web site has been developed to include a variety of display screens with different user interfaces, compatible with responsive Web design principles, allowing users to instantly access information anywhere and anytime.

Targeted user behaviour and experience was at the core of the development. At this stage, particular emphasis was placed on studying problems and behaviours of users (user research), analyse the problems (analysis), design the prototype (design), create the prototype (prototype) and test the prototype (user testing).

The prototype of the Web site was tested including the already mentioned two groups of participants. The results of the prototype testing were expected to be incorporated into the final development. Figure 5 depicts two screen captures of the Web site related to electronics engineering technology alumni.



a)



b)

Figure 5: Interactive alumni Web site related to electronics engineering technology alumni.

4. Usage results

The two groups, as mentioned above, selected by purposive sampling, included ten experts in the field of Web application development from different institutions, and 45 users including alumni, current students and personnel in

the College of Industrial Technology at King Mongkut's University of Technology North Bangkok. The participants were asked to rate the suitability of the Web site in a scale of five, from very high to very low. Table 1 below includes the score ranges and their interpretations.

Table 1: Average score range and with the corresponding suitability level [19].

Average score range	Suitability
4.50-5.00	Very high
3.50-4.49	High
2.50-3.49	Moderate
1.50-2.49	Low
1.00-1.49	Very low

The results the efficiency assessment of the Web site by ten experts in the field of Web application design and development are shown in Table 2.

Table 2: Results of the efficiency assessment of the Web site by ten experts.

Assessment item	Measure		Efficiency level
	Mean	SD	
1. Functions	4.70	0.48	Very high
2. Usability	4.60	0.52	Very high
3. Security system	4.20	0.42	High
4. Efficiency of functions	4.40	0.52	High
5. Response time	4.60	0.52	Very high
6. Overall elements correspond to the requirements	4.20	0.42	High
Overall efficiency	4.45	0.50	High

As demonstrated in Table 2, it was found that the overall efficiency of the Web site was high (mean = 4.45, SD = 0.50). Thus, it can be concluded that the Web site on the Cloud for alumni and other stakeholders is well designed in terms of functions, usability, security and other aspects, and hence capable of enhancing proactive public relations in an efficient manner.

The results of the satisfaction survey refer to the responses of 45 participants, including alumni, current students and personnel from the College of Industrial Technology, King Mongkut's University of Technology North Bangkok. The results are divided into two aspects: design and function as presented in Table 3.

Table 3: Results of the satisfaction survey.

Aspect	Assessment item	Measure		Design level
		Mean	SD	
Design	1. Suitability of screen design	4.44	0.65	High
	2. Suitability of user interface design	4.42	0.72	High
	3. Ease of use of various tools	4.28	0.75	High
	4. The Web site is attractive, modern and interesting	4.33	0.85	High
	5. Suitability of colours used in the Web site design	4.28	0.75	High
	6. Suitability of formats, colours and sizes of fonts	4.51	0.66	High
	7. Continuity of usability (application support)	4.35	0.77	High
	8. Contents are appropriate and consistent with the Web site objectives	4.48	0.75	High
	9. Compatibility with all kinds of devices	4.31	0.76	High
	10. Responsiveness to the user's requirements	4.33	0.76	High
	Overall design	4.38	0.74	High
				Function level
Function	1. Capability to manage news of events	4.28	0.75	High
	2. Usability	4.42	0.69	High
	3. Capability to search for alumni information	4.31	0.79	High
	4. Categorisation for easy access to information	4.44	0.69	High
	5. Overall response time	4.48	0.66	High
	Overall function	4.39	0.72	High

According to Table 3, it was found that the overall satisfaction of the Web site, in terms of design, was high (mean = 4.38, SD = 0.74). Also, when the assessment items are considered individually, there are only small differences in the scores and all of them are highly rated. Further, the overall satisfaction, in terms of function is also high (mean = 4.39, SD = 0.72). Likewise, when considering all items separately, it is evident that the satisfaction towards function is within the high score rating.

The results of the satisfaction survey in this study concur with the findings by Siagian et al [6], who indicated that the on-line instructional design for interactive e-learning based on rapid technology leads to efficiency in information management, and then results in convenient, rapid and efficient public relations. As a consequence, users can access the same information anywhere and anytime convenient to them, which can make them more satisfied with the method of information delivery through digital technology.

CONCLUSIONS

The interactive Web site on the Cloud created by the College of Industrial Technology at King Mongkut's University of Technology North Bangkok in Thailand is a Web-based application that can be used to enhance public relations with alumni and other stockholders. It is equipped with a variety of display screens and different user interfaces, allowing users to instantly access information anywhere and anytime.

The Web site has been intended for two groups of stakeholders: 1) system administrators; and 2) users, including internal users, e.g. alumni, current students, staff and instructors, all of whom, either were or are directly involved in various functions of the College, and external users who have no close relation to the College.

The results of the Web site's assessment indicate its high efficiency, as well as high user satisfaction towards the site's design and functions.

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