

Web-based Alumni Network and Database Information System with Mobile Application

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Abstract - This study aimed to design, develop and evaluate a system that facilitate the network of alumni and a database system with the application of web technology and mobile phone. Alumni can build their network in the website or in the mobile apps in order to develop a network. The information of the alumni will be saved in the database of for several purposes. The system used HTML5, PHP programming and MySQL. This study utilized developmental method of research using researcher-made questionnaire which was administered to the set of alumni. Respondents were the fifty percent (50%) of the SLSU graduate studies alumni graduated from the school year 2010 until 2014. The statistical tools used were the percentage, frequency count, weighted mean and Wilcoxon rank test. Based on the findings of the study, the developed system is very effective, very accessible, very accurate and secure.

Keywords - Alumni Network, Database Information System, Mobile Application, Web-Based Application, Alumni Tracer

I. INTRODUCTION

An interim progress and ultimate outcomes related to school and alumni performance is necessary to be manifested which could be thru the ongoing transposition of the alumni information. Alumni performance is an effective indicator of school effectiveness, since it can provide concrete evidence whether a school is undertaking things in line to what is needed in the industry. In addition, alumni turn out to be a potential advisor for continuous school improvement. Alumni are important manifestation of a school's excellence; they undeniably make an immeasurable contribution to represent the school's reputation thus they are known as one important stakeholder community. Sustainability of the school programs can also be provided by the alumni where a big portion of budget sometimes comes from them. And most especially, alumni participation is the key factor in colleges' and universities' ranking and meeting requirements for accrediting agencies.

Guasa (2008) stated that keeping track of the graduates' record and profile is necessary because their performance in the employment scene is one good indicator whether the

university, as a development arm, is responsive to the needs of the community as a reservoir of human resource, capable of sustaining the manpower requirements of the industries. This also helps institutions to be more strategic in developing their curricula as well as on deciding on program offerings, staffing patterns and faculty development.

Not only that the college alumni are a pool of potential individual donors, they are also a testament to the value of a continued association with the school. When students apply to college, they often evaluate alumni participation and accessibility. The alumni network is considered a valuable component of a school's total educational offering that can justify a higher tuition and a better ranking as compared to other schools (Conjecture Corporation, 2014).

Consequently, it is important that alumni of a certain school or university must build a paramount of connection and engagement among them. Not only that the alumni can exchange ideas and share knowledge within the network, they will also feel the sense of importance from the university. Connection between them will traverse some to a new career and build it with the assistance and support of

the other alumni. Connecting alumni is a good thing that the university should impose for alumni community is one of the major facets for development.

However, to some extent, it is usually easy to lose contact with the graduates after they embark on their various fields, and this is a problem of some schools because it is just that maintaining a sense of community among alumni is difficult.

The situation is most likely the same in Southern Leyte State University Graduate Studies, where dispersed connection of alumni is known. Amidst the growth and increase of graduates per year and unremitting enhancement and development, IT unit has no identified modern system to be used in developing a good network of its alumni as well as a database of its records. The plans and initiations had been put on and the purpose is placed yet the responsive network and database system of its alumni is not yet fully implemented. There might be reasons and issues that are perpetuating, thus a need of an alumni database information system is still there.

In order to strengthen the unit's ability to connect to its alumni, authentic information or database should be obtained from them which could be plowed from a development of an alumni network. Nevertheless, this development needs an instrument that will facilitate large response rates and at the same time an instrument that is more attractive and systematic. The networking which is done through internet is the best instrument to be made which could be applied since people are tied up to internet nowadays. Therefore, developing a web-based alumni network and database information system plus the mobile application is the best way to attain connections with the alumni. A network over the internet site is one the frugal method of gathering the alumni into hand and at the same time the mobile application is one of the latest trends exercised in the society. Through this two applications, gathering of information from the alumni as well as building network among them will be easy.

A web-based or simply can be referred to as the use of the World Wide Web (www) can be created in order to have a network of alumni. From that, contact information and related data can be taken out for a database or filling system which includes the functions such as generating reports, adding, deleting, and updating records.

The IT unit must have a good and constructive connection with its alumni. And in order to help the IT unit attain the aim with its alumni and at the same time can have

an automated system using computer technology that offers tremendous advantages over traditional paper system, the Development of a Web-based Alumni Network and Database Information System with Mobile Application is made. This development has a great strength because of its multiple ways in which the user has to interact using different communication resources.

II. METHODOLOGY

A. Research Flow

The existing system of the IT unit served as input in the process. Effectiveness, accessibility, security, and accuracy of the existing system were basically the core input of the proposed system. In order to get the desired output, certain process was considered such as data gathering and organization, analysis of the existing system, data processing, presentation, analysis, and interpretation of data. These led to the specific output which is the system itself, the web-based alumni network and database information system with mobile phone application. Figure 3 shows the Research Flow of the developed system.

B. Research Design

This study utilized a developmental evaluative design method of research to determine the significant difference of the existing alumni network and database information system and the proposed web-based alumni network and database information system with mobile application. Developmental evaluation is an approach that is suited to innovation, radical program, red-design, and replication complex issues and crisis. It emphasized knowledge about how change should occur and engage people in generating own solutions to the problems that adds value by helping to track development of innovation over time. This study intended to design and develop a system that brought solution to the given problem. Evaluation of the system was made to track its changes over time for further development.

The system being developed used a web-based application accessible by any browser and a mobile application for any phones or tablets with android operating system. Basically the system utilized the HTML5 and PHP programming language as frontend interface and MySQL as backend or for its database.

C. Research Respondents

The respondents of the study were the alumni of Southern Leyte State University Graduate School 2010 - 2014 They were the source of information from which the data were drawn. Alumni were students who graduated from a specific school, college, or university (Dictionary.com,

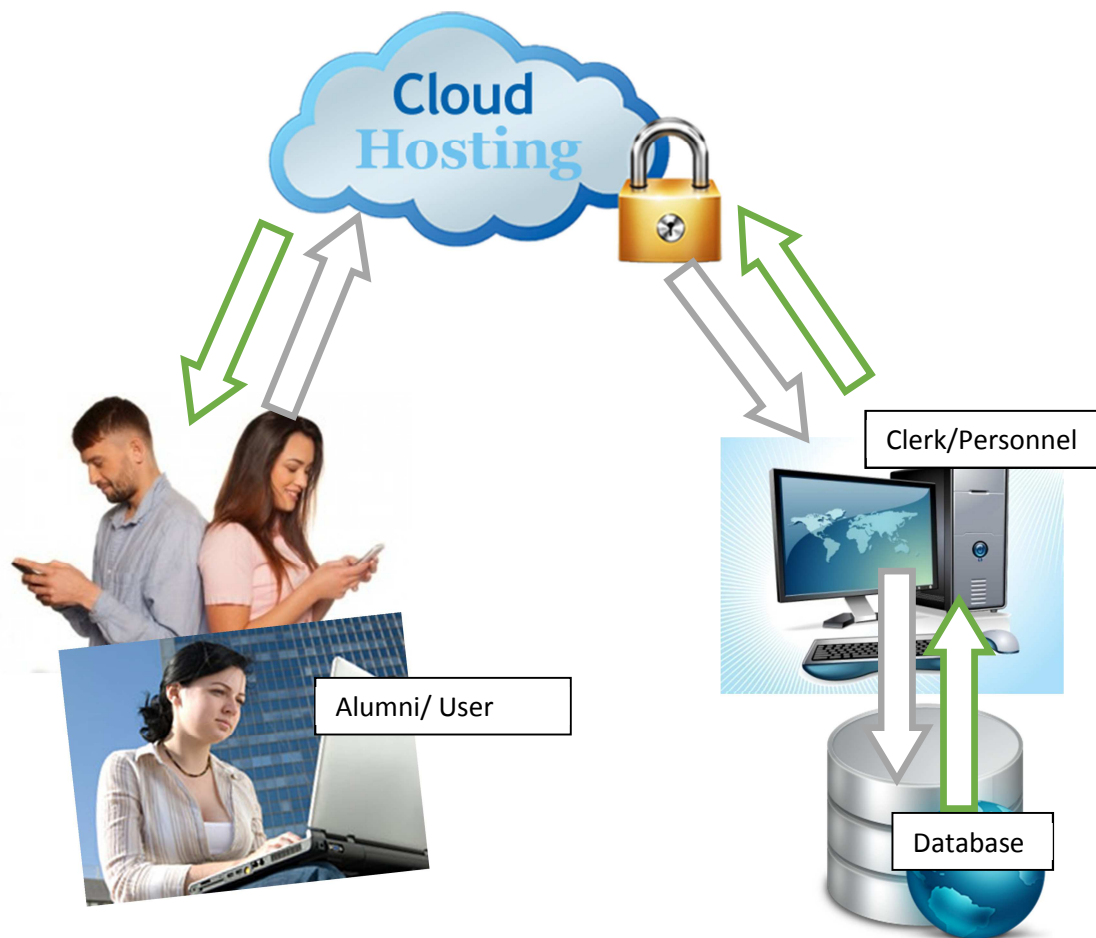


Figure 4. System Flow of the Web-based Alumni Network and Database Information System with Mobile application

2014). In this study this denotes the graduates of LNU but limited to the graduates from the IT unit who are the respondents of the study.

D. Research Instrument

The study utilized one questionnaire for the alumni which were personally designed by the researcher as the main instrument in the data gathering. One questionnaire was intended to evaluate the existing system and one questionnaire was made to evaluate the proposed system. Follow-up questions were done as supplementary technique of the fact finding. Follow-up questions were made through chat and email. The questionnaire was formulated based on the literature reviewed by the researcher and the variables that this study implies.

Since the instrument was researcher-made, critiquing with other researchers and adviser was done. Then they were pilot tested to the students in random process.

Revisions of the questionnaire were made after the pilot-testing to make it more comprehensive and easy to understand by the real respondents. The questionnaire was administered in web-based or mobile application method.

E. Analysis Procedure

In the analysis of data, the percentage, frequency count, weighted mean and Wilcoxon matched pairs signed-rank test was used.

- The percentage was used to determine the existing alumni database information system.
- The frequency counts were used to determine the features to be incorporated in the development of the system.
- The modal description was used to determine the problems encountered in the existing alumni database information system and performance of

the existing and the proposed system in terms of effectiveness, accessibility, accuracy and security.

- The Wilcoxon signed rank test was used to determine the difference between the performance of the existing system and the proposed system in terms of effectiveness, accessibility, accuracy and security.

III. RESULT AND DISCUSSION

A. Features included in the developed alumni network and database information system

Table 7 contains the features of the proposed alumni network and database information system with its ranking

Table 7. Features to be included in the proposed alumni network and database information system

Features	Frequency	Rank
1. Accessible through internet	119	1
2. Allows alumni to register and login anytime and anywhere	118	2
3. Allows alumni to use mobile and web technology	117	3
4. Can generate reports	115	4
5. Releases accurate information	115	4
6. Provides alumni records security	113	5
7. User-friendly	110	6

B. Performance of the developed alumni network and database information system

The developed alumni network and database information system was completed through web-based technology and mobile application. Two distinct users can use the system, the alumni and the administrator in which both have diverse steps to follow in using the system.

Alumni's steps in using the system:

Step 1: Registration to the system

The alumni will open the website www.lnuit-alumni.com where all the pages and links are organized to be viewed. A link called register will be clicked for a new page to appear containing the fields where necessary information is required to put in. Username and password are also required hence to be used during login process.

Step 2: Login to the system

After completing step one the alumni have two options to decide, the option to view the website without signing in but limited views and the option to view the website in full blast but needs to login. The alumni will provide the

based on the respondent's desire. Six (6) features were identified such as release of accurate information, allow alumni to use mobile and web technology, user-friendly, provides alumni records security, allows alumni to register and login anytime and everywhere, and can generate report. Respondents answered that the proposed system should allow alumni to register and login anytime and anywhere as it has the highest frequency of 118. On the other hand, among the listed features presented in Table 6, the feature that had the lowest frequency is the user-friendly feature with a frequency of 110.

username and password if the alumni opted to choose the option two. Upon clicking the button log-in the system will fetch the data from the username and password field and compare it to the key in username and password. If the two matches to the database of registered alumni the system will bring the user or alumni to the profile page. However, if the alumni wanted to choose option one which means not to log-in a chance to navigate the page is still possible only that the profile page and the directory page cannot be viewed.

Step 3: Navigating the page after log-in

After the alumni able to log-in, the alumni's profile page will be viewed. There are several things that the alumni can do within the profile page, one is to upload photo and change it anytime, update information related to work, education, activities and can post recent stories. These entities allow the alumni to freely provide their information for sharing it with others and to build a network among other alumni. The system allows editing and updating of information anytime and every time the alumni wanted it. Everything that the alumni posted in the profile page can be viewed by co-alumni who are also logged-in at the time.

This precisely means that alumni who wanted to view the network of alumni must register first and log-in. Alumni who desert not log-in can only view the home page, recent programs and updates and contact page.

The performance of the proposed alumni network and database information system was also evaluated in terms of effectiveness, accessibility, accuracy and security.

C. Effectiveness

As reflected in Table 8, majority of the items measuring the effectiveness of the developed system are very effective. The developed system had a very effective registration requirement because every detail was asked during the registration. The registration process was effective enough because it was done online and no need for the alumni to personally visit the office of the IT unit. With regards to the registration duration the developed system had already the stored information of graduates from the database which automatically popped-up the time that the system identified

the alumni's identity. These two items were not considered as very effective by the alumni because most of them were not yet oriented with the new technology introduced by the system but nevertheless the system able to helped them during the process. The system being developed is available to the all alumni all the time they wanted to accessed it and so they said it was very effective, thus the usage of the system was seen very effective by the alumni.

Cost Effective, Web based applications can considerably lower the costs because of reduced support and maintenance, lower requirements on the end user system and simplified plans. Web based applications have come a long way and is offering competitive advantages to traditional software based systems allowing businesses to merge their systems and processes and above all reduce costs as well (Desousa, 2014).

Table 8. Performance of the developed alumni network and database information system in terms of effectiveness

Items for effectiveness	VE	E	LE	NE	Modal Description
1. Registration requirement	56	50	12	2	Very effective
2. Registration process	37	57	23	3	Effective
3. Registration duration	37	50	30	3	Effective
4. Availability of the system	92	13	6	9	Very effective
5. Usage of the system	90	25	4	1	Very effective
Average					Very effective

D. Accessibility

Table 9 shows the assessment in measuring the accessibility of the developed system. The respondents said that during day time the system was very accessible, it was because most of them had enough time during day time. But only those day times that they were not at work station. There might be computers at the working place so the system was accessible only that the alumni had less time in accessing it because of work therefore during working days the system was less accessible.

This supported the result to the item during night time where in most of the alumni said that the developed system

was less accessible. It was so because during night time they could not use computers or computers are not commonly available in their houses where they stay during night time. During the weekend the alumni said the system was accessible because many of them were traveling home.

Generally, the result of the developed system in terms of accessibility constituted to the idea of Green, (2014) which states that when you use an online technology model, your workers can log on from anywhere in the world and get the data they need to do their jobs.

Table 9. Performance of the developed alumni network and database information system in terms of accessibility

Items for accessibility	VA	A	LA	NA	Modal Description
1. At work station	45	53	0	22	Accessible
2. During day time	60	23	0	37	Very Accessible
3. During night time	33	42	44	1	Less Accessible
4. During weekend	20	72	27	1	Accessible
5. During working days	43	20	56	1	Less accessible
Average					Accessible

E. Accuracy

Six items were considered to measure the accuracy of the developed system such as registration of alumni, confirmation of alumni's record, acquiring alumni information, posting of updates, exchange of alumni's information and information immediately recorded. As presented most of the alumni said that the registration of alumni was very accurate or accurate. In the same way posting of updates was said very effective for the alumni since in the developed system there were features where alumni can post stories or status in a given time.

Additionally, the developed system had the page where all the activities and updates of the alumni can be posted. The item Information immediately recorded was considered by the alumni as very accurate due to the fact that the developed system automatically recorded necessary information which can be viewed by the alumni through internet and mobile apps. The rest of the items were considered by the alumni as accurate because the system did not able to confirm the record of some alumni since not all alumni were added to the database specially those alumni who were not enrolled in the database for enrollment system.

Table 10. Performance of the developed alumni network and database information system in terms of accuracy

Items for accuracy	VA	A	LA	NA	Modal Description
1. Registration of alumni	51	51	16	2	Very Accurate/accurate
2. Confirmation of alumni's record	35	83	1	1	Accurate
3. Acquiring alumni information	36	60	23	1	Accurate
4. Posting of updates	96	12	8	4	Very accurate
5. Exchange of alumni's information	46	53	14	7	Accurate
6. Information immediately recorded	65	27	22	6	Very accurate
Average					Accurate

F. Security

As can be seen in Table 11, there were five items considered in measuring the security of the developed system. The item which was all about filling of alumni information was said very secure since aside from the electronic database that the developed system was providing, it has the feature of compiling the information, searching the information and printing the information as hard copy and backup. This was correlated to the item that conferred about storage of information where most of the alumni said it was very secure. This was because the system has the backup through report generation as formerly stated. However, for viruses, malware, and security from

unauthorized personnel the alumni said that the developed system was only secure since internet nowadays has a lot of hackers and intruders which are beyond the control of the features of the developed system but can be prevented in some other means.

Desousa (2014) said that web based applications have evolved with improvements in security and technology, as there are plenty of situations where traditional software based applications and systems could be improved by migrating them to a web based application.

Table 11. Performance of the developed alumni network and database information system in terms of security

Items for Security	VS	S	LS	NS	Modal Description
1. Filing of alumni information	47	42	30	1	Very Secure
2. Storage of information	48	31	40	1	Very Secure
3. Security from viruses	42	44	34	0	Secure
4. Security from malware	43	59	15	3	Secure
5. Security from unauthorized personnel	39	70	8	3	Secure
Average					Secure

G. Significance of the Difference between the Performance of the Existing Alumni Network and Information System and the Developed Web-based Alumni Network and Database Information System with Mobile Application

Table 12 shows the comparison of the performance between the existing system and the developed alumni network and information system in terms of effectiveness, accessibility, accuracy and security.

Table 12. Significant Difference on the performance of the developed alumni network and database information system in in terms of security

Paired Variables	Rank	N	Mean Rank	Sum of Ranks	Z-Value	P-value	Interpretation
Effectiveness (existing)	-	3	21.00	63.00	-8.597	.000	Significant
Effectiveness (developed)	+	97	51.41	4987.00			
Accessibility (existing)	-	2	8.50	17.00	-8.888	.000	Significant
Accessibility (developed)	+	100	52.36	5236.00			
Accuracy (existing)	-	1	14.00	14.00	-8.515	.000	Significant
Accuracy (developed)	+	93	47.86	4451.00			
Security (existing)	-	6	17.50	105.00	-6.224	.000	Significant
Security (developed)	+	56	33.00	1848.00			

As presented in Table 12 above, all the interpretations are significant for effectiveness, accessibility, accuracy and security. This means that there is significant difference between the performance of the existing alumni network and database information system and the proposed web-based alumni network and database information system with mobile application in terms of effectiveness, accessibility, accuracy and security. The registration requirement, availability and usage of the existing system are less effective while the developed system registration is very effective. However, the two systems are effective in terms of registration process and registration duration. The existing system is not accessible as compared to the developed system especially during day time where in the existing system is less accessible while the developed system is very accessible. During weekend the existing system is not accessible while the developed system is accessible. The developed system is accurate as compared to the existing system which is less accurate. This is so

because the posting of updates, the exchange of alumni's information is not accurate in the existing system while the developed system is very accurate in relation to posting of updates and accurate in exchange of alumni's information. As for security, the developed system is very secure in filling alumni information and in storing of information, a contrary to the existing system that is not secured in the said two areas. However, the two systems were measured as both secure because there is an aspect of the existing system like the security from unauthorized personnel which is very secure and the developed system is only secure.

IV. CONCLUSION

Based on the findings of the study, the researcher concludes that the existing system in has no significant use to the alumni and it gives no effective impact to them because it is not accessible anytime and anywhere. Additionally, the existing system provided less accurate data though it is secure. This kind of system will not support the

theory of Fall (2011) stating that a good relation with alumni helps the development of the universities. The developed system with the application of modern technology such as internet and mobile application allows the alumni to have access all the time with accurate and secure information. As what Thomas (2014) said in his theory that without database it would be hard to find decent system of keeping and managing information. Moreover, the use of web- based application and online model is vital tool for the alumni to have good connection. Thus, the developed web-based alumni network and database information system with mobile application is exceedingly necessary.

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