

Development of an Alumni Feedback System for Curriculum Improvement in Building Technology Courses

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Abstract. In this fast-paced world, the needs of the world of work and the global market is changing at an unprecedented speed. Therefore, institutions of higher learning need to constantly adjust their programs to fit into these needs. The study aimed to develop an alumni feedback system for curriculum improvement in Building Technology courses. The study highlighted the benefits of an alumni feedback system compared to a manual questionnaire method or other methods of curriculum improvement. The web-based system was designed through use case and system block diagrams. Thereafter, the web-based system was programmed using HTML, CSS, MySQL and PHP. Screenshots of the web-based system was presented. The alumni feedback system comprises of background information of the alumni, perception test on the impact of the course content and a review of the course content for curriculum improvement. Since this is a preliminary study, future studies would be based on analyzing data obtained in the database in terms of the numerical and text data. This study can be adapted for other programmes for the purpose of curriculum improvement.

Keywords: Construction industry · Curriculum · Web-based systems

1 Introduction

It is common to evaluate students on different parameters after a course has been taught. However, another insight is produced when they have graduated and encountered the real world and the world of work. The reality that sets in is if they can actually apply what has been learnt in the four walls of their university. [1] suggested that due to the fast-paced changing strata in the needs of the world of work and the global market generally, institutions of higher learning need to constantly adjust their programs. [2] added that this is the first rule of sustainability, where universities are current in terms of the product and services they are dishing out to their customers. The customers in this case is the world of work while the products are the seasoned graduates that have been groomed with tested and up-to-date curriculum.

Taking this study to the Nigerian context, [3] argued with over 200 tertiary institutions, the products are most times unemployable. They attributed this to the outdated

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school curricula and lack of employable skills. [4] argued that the educational system must move away from the era of chalk and talk, rather focus on the industry needs to build employable graduates. Researchers such as [5] and [6] noted that unemployment has been the most socio–economic challenge gripping developing nations such as Nigeria. This most times is linked to curricula of higher institutions. The curriculum should be such that help graduates to fit into the world of work or be creators of jobs. Rather than waiting on the government in developing countries, the onus is on schools of higher learning to re-strategize on how to ensure that their graduates are employable and also create employment for others. In developed countries, the higher institutions have deeply taken initiatives to create graduates that are ready for the workplace as a result of listening to the needs of industries [7]. [8] opined university researchers in developed countries are able to observe the need trends of industries and examine their importance in improving the state of the nation's economy and technological advancements. What better way to understand the needs of the real world than viewing it from the eyes of the Alumni in comparison with the present curriculum.

The case for the building technology curriculum is centred on its relevance in oiling the necessary housing and urban infrastructure needed in developing nations, menace of building collapse and other un-professional conduct that negatively affect the image of the construction industry. Nigeria for instance struggles in these things. This study posits that if one of the root causes of these negative attributes of the Nigerian construction industry is associated with the outdated curriculum, then there is need for a review. The construction sector is looking for raw talents that are able to assume the required positions within organizations with little or no need of retraining [9]. These employable recruits will be able to fill the skill gap that exists in the construction sector. For employers of labour, [7] noted that a skill deficient graduate will lead to a loss and poor output for the firm. The construction industry is so critical in using graduates that have the required skills because of the nature of the products in terms of housing and other civil infrastructure [10]. The role of universities should not end in producing academically sound graduates but additionally ensuring that they are desirable to employers. This is one of the numerous roles of a robust and sustainable educational curriculum. Therefore, the study intends to develop of an alumni feedback system for curriculum improvement in Building Technology courses.

2 Review of Related Literature

In the study by [11], they argued that graduates from Nigeria's tertiary institutions have not been able to meet employers' needs. [12] stated that this is against the idea of quality education of creating job creators rather than job seekers. Sadly, [11] opined that many of Nigeria's graduates find it difficult to eloquently communicate and confidently defend their certificates on the job without adequate retraining. Statistically, [13] reported that only 10% of students that graduate annually become employed immediately. This points to the gap that exist in the Nigerian education curriculum system.

Several studies have pointed to the need for university-industry partnership in curriculum development. Interestingly, the alumni of university bodies have become

part of the industry and being former students that have passed through the university courses have become rich source of curriculum improvement. [1] studied the impact of alumni feedback on a masters' programme in engineering based courses. Their study was able to assess the relevance of the program, the suitability of the objectives outlined in the program and the expected outcomes from graduates. However, the study used a paper-based method in form of a well-structured questionnaire. Similarly, [14] measured the impact of using alumni as an assessment tool for curriculum improvement in mechanical engineering programs. This study posits that the process can be automated. This is sustainable, can give instant and faster feedback. The result can be analyzed on the spot, whereby improvements can be effected immediately.

The study by [15] developed an alumni feedback systems for adult education among alumni. Their study advised that in the face of stiff competition and dwindling funds for universities there is need for innovative approach in improving their school's performance and service delivery. Using an alumni feedback system is not limited to curriculum improvement. [15] noted that it can be useful in managing alumni-university relationships, obtain latest industry information as regards the courses, supply of information as regards vacant employment positions in the industry and developing new programs that can engender lifelong learning among alumni. [16] evaluated the veterinary curriculum using an alumni-based approach on expected attributes of graduates from the program. [17] reported that some accrediting bodies usually suggest that programs intermittently engage outside evaluation for program improvement. In the study by [17], they used an unnamed online survey directed at graduates from over a decade for curriculum improvement in obstetrics and gynecology. From all the reviews, automating the process of the alumni feedback system is better than the paper-based method. This is so, in that, response can be stored, retrieved easily and processed faster.

3 System Design and Implementation

The alumni feedback system for curriculum improvement was designed as a web-based system which has a home interface and a database system. In order to design the web-based form, the use case diagram and a system block diagram was developed. Figure 1 showed the use case diagram of the alumni feedback system for curriculum improvement. In Fig. 1, there are majorly two users; the lecturer and the alumni completing the online form and curriculum improvement section.

Secondly, a system block diagram was designed as shown in Fig. 2. This helped to describe the pattern of the interface that was developed. In Fig. 2, a URL is provided to the alumni who are able to complete their background information, take the perception test on the course and help review curriculum content for improvement purposes. The lecturer on the other hand can access the back end of the web-form to obtain the content of the curriculum improvement through the database and analyse the content.

Using the use case diagram and the system block diagram, the study developed the web-based interface for alumni feedback system for curriculum improvement in building technology courses. Adopting the interactive database framework by [18–20] as shown in Fig. 3, the web-interface was designed using HTML and CSS, while the

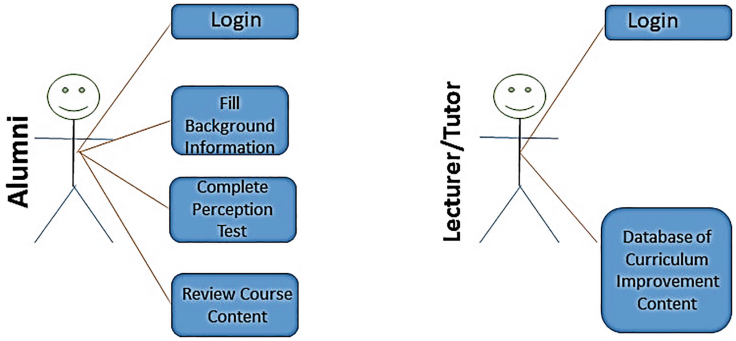


Fig. 1. Use case diagram of the alumni feedback system for curriculum improvement. Source: Author's Design

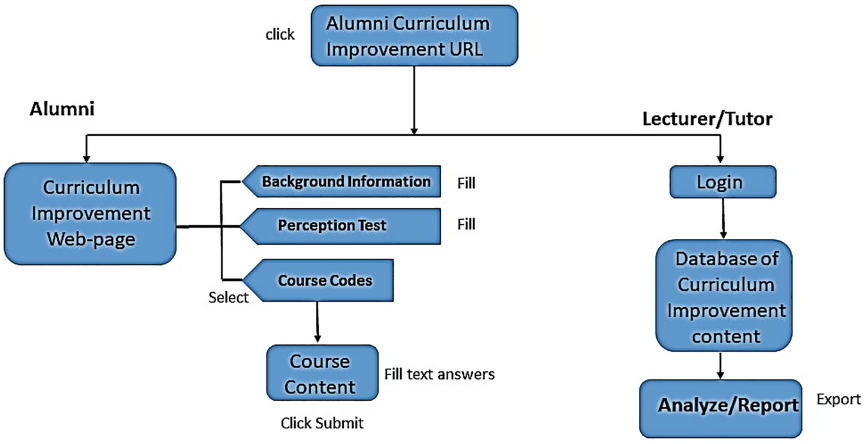


Fig. 2. System Block diagram for alumni feedback system for curriculum improvement. Source: Author's Design

database for the curriculum improvement was designed using MySQL. The connection platform for the web-interface and database system was achieved using PHP programming language.

A snippet of the PHP programming code is shown in Fig. 4. The preliminary work is accessible via the link http://bigtorch.com.ng/AlumniFeedback/index.php. The details in the link is presented in Screenshot as presented in Figs. 5, 6, 7 and 8. Figure 5 showed the background information of the alumni.

Background such as gender, program, email, year of graduation, grade at graduation and status of practice in the Building profession were requested. The second part of the alumni feedback system sought answers on their perception about the impact and usefulness of the course content on their present practice. The study used a 5-point Likert scale on the perception of the students to the course content. The parameters used in this section were adapted from [1, 14–17]. The third section of the

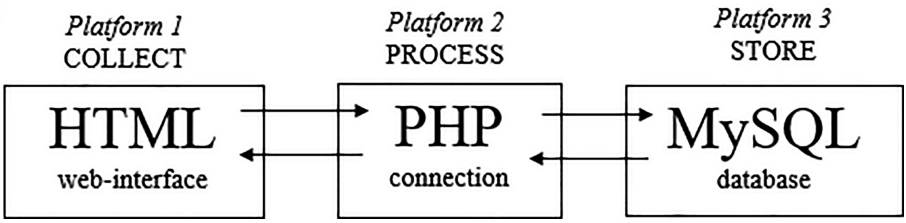


Fig. 3. Interactive framework for the web-based system. Source: [18]

```php
<?php
error_reporting(0);
    if($_POST['send'] == 'yes')
    {

        $servername = "[redacted]";
        $username = "[redacted]";
        $password = "[redacted]";
        $dbname = "[redacted]";

        // Create connection
        $conn = mysqli_connect($servername, $username, $password,$dbname);

        // Check connection
        if (!$conn) {
            die("Connection failed: " . mysqli_connect_error());
        }
        else{

            extract($_POST);
            date_default_timezone_set('UTC');
            $timestamp = strtotime($yog);
            $date=date("Y-m-d", $timestamp);

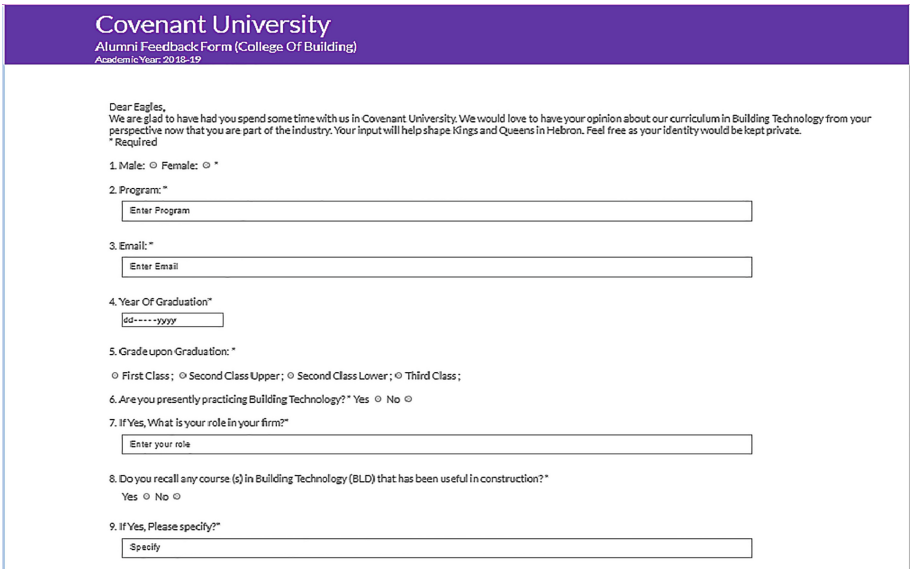
            $sql = "INSERT INTO `alumni_data`(`sex`, `program`, `email`, `yog`, `grade`, `practise`, `firm`, `course`, `spec`, `exp`, `bal`,
            `place`, `res`, `tm`, `chal`, `adv`, `enter`, `solve`, `cbp`, `bCon`, `sDesign`, `Com`, `rel`, `omskill`,
            `mat`,`foundtn`,`floors`,`trends`,`ict`,`foundtn2`,`floors2`,`trends2`,`ict2`) VALUES
            ('".$sex."','".$program."','".$email_add."','".$date."','".$grade."','".$practicing."','".$firm."','".$course_rem."','".$spec_remembe
            r."','".$experience."','".$bal."','".$placement."','".$research."','".$teamwork."','".$chal."','".$adviser."','".$enter."','".$solve.
            "','".$cbp."','".$bCon."','".$sDesign."','".$Com."','".$rel."','".$omskil."','".$mat."','".$foundtn."','".$floors."','".$trends."','"
            .$ict."','".$foundtn2."','".$floors2."','".$trends2."','".$ict2."')";

            if ($conn->query($sql) === TRUE) {
                echo "Yaay!! Your feedback is successfully logged !!!";
            } else {
                echo "Error: " . $sql . "<br>" . $conn->error;
            }
        }
```

Fig. 4. Screen shot of the programming language used. Source: Author's Design

web-interface highlighted all the courses in Building technology from 100 level–500 level. The alumni are advised to select a course they would like to review the content and suggest ways to improve the teaching and delivery of the course content. Upon completion of the details, the alumni submits the responses which can be accessed via the database by the lecturer/tutor.

This ongoing research designed the web-based alumni feedback system to improve instructor's pedagogy and help in curriculum improvement towards producing employable graduates. Comparing this study with previous studies in [1, 14, 15], this study prescribed a web-based system rather than a paper-based questionnaire method. As the university graduates from this tertiary institutions are dispersed in different locations around the world, the web-based system gives them the opportunity to contribute to curriculum improvement for the younger generation. The alumni curriculum improvement link can be shared via emails, WhatsApp and on the Departmental website. Further studies in this light would analyse the feedback from the database of the alumni feedback system and analysing the empirical data would present to the instructor the needed changes that needs to be in place for better pedagogy.



Covenant University

Alumni Feedback Form (College Of Building)

Academic Year: 2018-19

Dear Eagles,
We are glad to have had you spend some time with us in Covenant University. We would love to have your opinion about our curriculum in Building Technology from your perspective now that you are part of the industry. Your input will help shape Kings and Queens in Hebron. Feel free as your identity would be kept private.
* Required

1. Male: ○ Female: ○ *

2. Program: *
Enter Program

3. Email: *
Enter Email

4. Year Of Graduation*
dd-----yyyy

5. Grade upon Graduation: *

○ First Class ; ○ Second Class Upper ; ○ Second Class Lower ; ○ Third Class ;

6. Are you presently practicing Building Technology? * Yes ○ No ○

7. If Yes, What is your role in your firm?*
Enter your role

8. Do you recall any course (s) in Building Technology (BLD) that has been useful in construction? *
Yes ○ No ○

9. If Yes, Please specify?*
Specify

Fig. 5. Background information of Alumni in the Feedback system. Source: Author's Design

Please kindly indicate the one that applies to courses in Building Technology using
5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree

S/N	Parameters	5	4	3	2	1
1	Overall Educational Experience was satisfactory	○	○	○	○	○
2	There was balance between theory and practical	○	○	○	○	○
3	The program helped to quickly secure a placement in the industry	○	○	○	○	○
4	Independent research work was adequate	○	○	○	○	○
5	Teamwork was encouraged	○	○	○	○	○
6	The courses were intellectually challenging	○	○	○	○	○
7	My level adviser was helpful in the study	○	○	○	○	○
8	Entrepreneurship was encouraged	○	○	○	○	○
9	The study helped me solve problems faster and better	○	○	○	○	○
10	Teaching of Computer-based programs are adequate in the courses	○	○	○	○	○
11	The business aspect of construction was well taught	○	○	○	○	○
12	The structural aspect of building design was taught	○	○	○	○	○
13	Communication skills were enhanced	○	○	○	○	○
14	The courses are applicable/relevant to real life situations	○	○	○	○	○
15	There were enough materials for the courses	○	○	○	○	○
16	Organizational and managerial skills were developed	○	○	○	○	○

Fig. 6. Perception test on the impact of Building Technology courses. Source: Author's Design

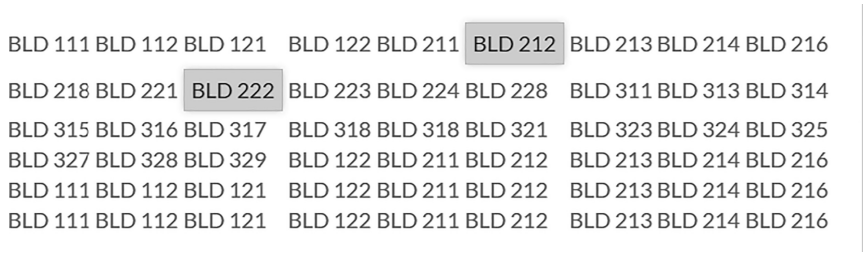


Fig. 7. List of course codes in Building Technology in the Feedback system. Source: Author's Design

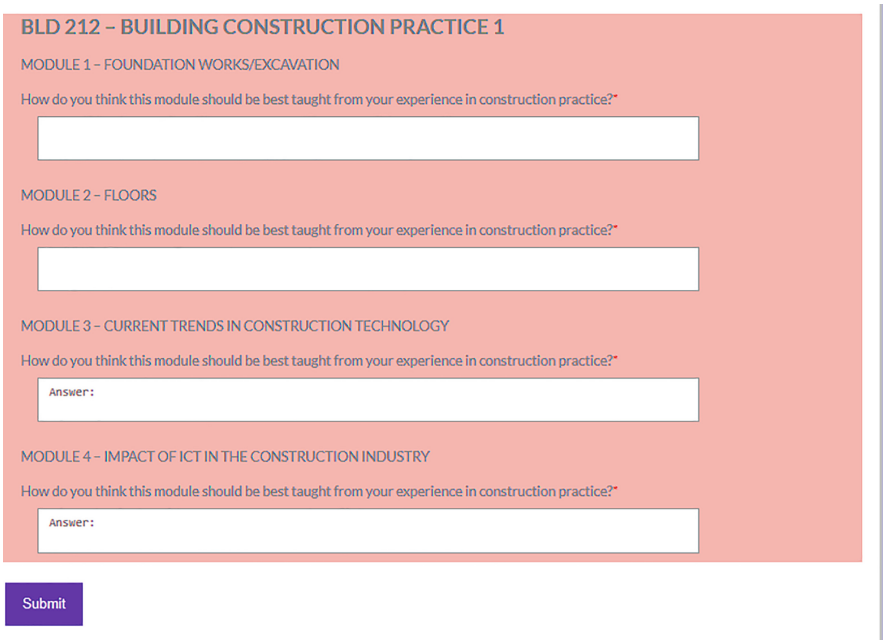


Fig. 8. Sample of a selected course code showing course content to be reviewed. Source: Author's Design

4 Conclusion

The study present the aspect of curriculum improvement through the online participation of alumni feedback in Building Technology courses. The study highlighted the benefits of an alumni feedback system compared to a manual questionnaire method or other methods of curriculum improvement. The web-based system was designed through use case and system block diagrams. Thereafter, the web-based system was programmed using HTML, CSS, MySQL and PHP. Screenshots of the web-based system was presented. The alumni feedback system comprises of background

information of the alumni, perception test on the impact of the course content and a review of the course content for curriculum improvement. Since this is a preliminary study, future studies would be based on analysing data obtained in the database in terms of the numerical and text data. This study can be adapted for other programmes for the purpose of curriculum improvement.

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