

Web-Based System on Evaluating Practicum Experiences of Students

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Abstract

The onset of Covid-19 pandemic prompted educational institutions to adapt flexible learning system where students have the option for online or blended learning. This is one concern of the Practicum courses since face-to-face meeting with training supervisors and hands-on experience of work are usually done. With the quarantine restrictions prohibiting students to hold their on-the-job trainings in offices and only have the option to do it online, educational institutions may conveniently monitor and assess the practicum experiences of their students even without doing onsite monitoring. Through a web-based evaluation system, an educational institution can systematically and conveniently conduct a 3600 feedback from practicum supervisors and practicum students that provides input in the monitoring performance of students and feedback on learning experiences in training stations. The conducted system testing and evaluation among the target users yielded favorable points on pursuing a project that can be simultaneously utilized by students, faculty, and training stations for a faster and easier way of data collection and generation in the course Practicum across different disciplines.

Keywords— online evaluation, practicum, on-the-job training, training feedback, web-based evaluation

INTRODUCTION

To ensure alignment of academic training to industry needs, educational institutions send students to different offices as on-the-job trainees or practicum students. Through immersing into the actual work done in the field, students gain additional knowledge on the specialization, as well as become more prepared to becoming part of the professional workforce after graduation.

This learning process entails a consistent interaction between and among practicum instructors, practicum students, and training supervisors. Practicum instructors must have the means to be connected to the training supervisors of offices for the proper monitoring and assessment of the students' welfare and development in the field. Similarly, the learning experiences of students in the training stations must be properly documented to ensure progress of learning in during the practicum. Lastly, the training supervisors should also have

a way to communicate with the practicum instructors should there be necessary queries or information that needs to be shared.

LITERATURE REVIEW

Importance of Practicum to Students and Educational Institutions

Through practicum, the students are trained to establish comradeship with others which prepares them for a positive relationship with their co-workers in the future. The Training Engagement Theory that was conceptualized provided importance to the processes in the organizational hierarchy that determines success and/or failure of a training [1]. Based on the self-perceived competency development experienced in the training stations, it is recommended that there must be a self-assessment of training evaluation [2]. In fact, an assessment of an on-the-job training that is more reflective provides sensitivity to a specific learning environment conditions [3]. Such also

holds true in an article which states that On-the-Job-Training programs have taken on an important role in education since they present students with many advantages [4], ranging from gaining experience and obtaining career-related direction to networking with other students from various institutions.

Meanwhile, in another paper OJT was emphasized as one of the best training methods because it is planned, organized, and conducted at the trainer's worksite [5]. It is generally the primary method used for broadening employee skills and increasing productivity. Similarly, the overall outcome of the on-the-job training experience can be measured by the extent of preparation and support which both the school and the trainer companies are providing to the students [6].

On the other hand, from the school and training station's perspective, the purpose of the on-the-job training is to train students to be skilled and productive. A quality on-the-job training and a quality outcome occurs when the employer understands that the OJT is intended to provide employees with solid work skills and habits and a chance for career advancement.

However, it is important that not only students gain from the training, but also the school as well. The school offering student-traineeship programs have also benefitted through increased cooperation and rapport with the industry [7]. It eases coordination with different institutions and at the same time builds a strong relationship with them. Industry affiliates of the school will likely provide job opportunities to its graduates. In addition, internships have been hailed for integrating classroom education with practical experience [8]. The trainings gained from different stations, thus, exposes students to the realities at work which may be positive or negative in nature.

Problems Encountered in Practicum

One aspect has been studied by and identified problems encountered by students during their on-the-job training which includes: (1) distance of the trainer company from the school or the student's home; (2) time conflicts between classes and on-the-job training schedules; (3)

inadequate knowledge regarding the task assigned; (4) the risk of accident in the place; (5) the trainer company does not give task not related to the course; and (6) superiors does not have a good working relationship with the students [9].

In another paper, confusions on the responsibility of arranging their internship placement, as well as thoughts on the limited amount of OJT hours making which makes them not fully functional emerged as major problems of students [10]. Meanwhile, issues on unscrupulous trainer companies, teachers' difficulty in scheduling the ocular visits to companies due to geographical constraints.

There are schools that require students to make an e-portfolio of their practicum learnings which include lesson plans, observation reports, and self-evaluation reports. Another paper realizes that materials are uploaded using Google sites to be accessed by the lecturers and peers [11]. Since this set-up requires subscription to GSuites, the unavailability of this account to some enterprises, in this case, training stations, may become a hindrance to effective means of evaluation.

Necessity for Online Evaluation System

Organizations value knowledge management in the aspect of human resource. Many researchers assessed the job-related attitudes and turnover intention across IT job types through among four groups of IT roles: consultants, programmers, system engineers, and system administrators [12]. The questionnaire was made online and accessible to the respondents through sharing in Monster.com. Though this seems advantageous in terms of accessibility, uploading of data in a third party sacrifices the security of data. Moreover, this set-up does not provide access to the probable users of data.

Since close monitoring of on-the-job trainees is emphasized in the articles of A system of evaluation is clearly seen as an important prerequisite among students, schools, and partner industry as a way of ensuring the quality of the OJT experience of all parties [9]. This study finds its place in the scene of facilitation of a feedback system electronically.

Meanwhile, in another paper, it was investigated that the perception of graduate students on the importance of having an e-portfolio and how it can be improved [13]. Results show that construction of e-portfolios is found to be beneficial in their self-reflection of performance, as well as in adding self-confidence in using technology.

In the context of education, having a system that aids in the coordination among different parties involved in the conduct of practicum or on-the-job training is beneficial. Another paper investigated how work placement enhances practical and theoretical knowledge for students [14]. One of the findings in the focus group discussion (FGD) with the students is the perceived lack of connection in the implementation of the program. If there exists a system that would enable the students, instructors, and training stations to coordinate and to evaluate practicum experience, students may feel more the involvement of each party in their learning experience. In addition, on-the-job training programs have taken on an important role in education since they present students with many advantages, ranging from gaining experience and obtaining career-related direction to networking with other students from various institutions [4].

Human-computer interaction in performance evaluation

One paper explains that scholars doing studies in human-computer interaction are involved in the prediction and anticipatory design in business as they are involved in evaluating existing prototype or product form [15]. In any computer application, the subjective experience of the user is necessary in the process of development and innovation. Another paper investigated concepts which are relevant to different user representations. Such are visual appearance, multimodal feedback, sense of agency, input methods, peri-personal space, visual perspective, and body ownership [16].

Since the interaction with users is one of the most important elements in system development, there must be an easy-to-use graphical user interface which can be gathered from a testing and charting of bases for

development [17]. The application of web-based technology is even considered as an integral part in the marketing of the airline industry in terms of gathering information on customer needs [18]. For cost effectivity reasons, web-based survey is even considered to know the affective satisfaction of users toward use of mobile phones [19]. In the aspect of evaluating performance in school, the Kirkpatrick model utilizing CodeIgniter framework was used [20]. For subjective quality assessments, a web-based evaluation system is also adapted to reduce time for planning and designing [21].

Because web-based applications are found to be beneficial in various industries, educational institutions may also improve efficiency and effectiveness in handling Practicum courses. The exchange of communication among the practicum instructors, practicum students and training supervisors are essential for ensuring effectiveness of a practicum program and for strengthening the collaboration of the academe and industry in molding the expertise of future professionals. Since the Covid-19 pandemic set in beginning year 2020, it has been impossible for the educational institutions to send students for face-to-face practicum in the offices, as well as to visit these offices for monitoring of students. As the quarantine restrictions are still in place indefinitely, an online means for coordination is deemed necessary.

A web-based evaluation system that provides feature and benefits needed in the functions of a practicum instructor, practicum student and training supervisor would be beneficial for the parties concerned for communication and collaboration can still be possible despite the pandemic. This paper proposes a system that aims to: (1) develop a secured and paperless evaluation system for practicum instructors, students, and training stations in the assessment of the trainees; (2) create a mobile application counterpart of the system; and (3) conduct a preliminary evaluation of the website version among the users.

METHODOLOGY

Method

The web-based software is integrated using the DFS since it requires access to multiple users. Likewise, server load balancing will be ensured by redistributing targets. Records and report may be accessed even in remote computers. Thus, the software will be assigned with a central repository of data for future reference.

This research used the System Development Methodology (SDM). The System Development Life Cycle was utilized. It is divided into 6 stages, namely, Requirements Gathering, Analysis, Design, Coding, Testing, and Acceptance. The overall software structures were defined in the Analysis stage. Data Flow Diagrams as well as the Entity Relationship Diagram were designed in the third stage.

Coding of different modules was completed. There are six (6) levels of access: Administrator, Director, Academic Head/Practicum Coordinator, Students, Practicum Supervisors and Practicum Instructor. After which, repeated testing was done in preparation to the full implementation of the proposed system. All access levels were tested and evaluated. Proponents made sure that all modules are properly working and in accordance with the suggested requirements of the users as per result of the training and evaluation. Designs and general appearance and the reports generated were enhanced to suit the needs and skills of the intended users.

The proposed mobile application counterpart was created after the completion of the online assessment. The system was initially implemented in a university for pilot testing.

The administrator access processes the capturing of faculty assignments and student enrolment to the Practicum course. The Director and/or the Academic Head assigns the Practicum class to the Instructor and they can both view the results of the evaluation. The students enrolled need to have a self-evaluation and an evaluation of the practicum site. The training station supervisor, on the other hand, evaluates the on-the-job trainee. The OJT Instructor can access both the information on

the self-evaluation and practicum site evaluation of students.

A mobile counterpart of this software is provided for the students and the training station supervisors. This application has a log-in feature and operations that are similar to its web-based version.

Participants

A total of 118 participants served as evaluators of the software which were selected using purposive sampling. The intended users in the university were considered as the participants for the testing.

The system testing was conducted per user. Seventy-one (71) students enrolled in the Practicum course were asked to try both the web-based and mobile application version of the student module. Meanwhile, ten (10) actual training station supervisors of the students tested the supervisor module. Two (2) administrative heads and ten (10) faculty members were asked to evaluate the director, academic head, and instructors' modules.

RESULTS

The proponents developed modules for the three (3) users of the system, as well as reports which can be generated using the system, which are intended for the information management of on-the-job trainees.

Appearance

Almost all students agreed that the page layout and use of color, fonts and images are consistent throughout the site, finds the design appropriate for the purpose of the site and for the intended audience, agreed that the page layout is balanced, clean, and uncluttered, acknowledges that the important content (navigation, page identification, etc.) is visible without scrolling and affirms that the purpose of the site and the pages within it is immediately clear. Different supervisors in almost all training stations agreed that the page layout and use of color, fonts and images are consistent throughout the site, finds the design appropriate for the purpose of the site and for the intended audience agreed that the page layout is balanced, clean, and uncluttered,

acknowledges that the important content (navigation, page identification, etc.) is visible without scrolling and affirms that the purpose of the site and the pages within it is immediately clear. Only 3 per cent had a difficulty in finding important content without

scrolling. The university personnel positively viewed the appearance of the system. This suggests that the choice of aesthetics of the proponents fit the visual preference of all types of users. See Table 1.

Table 1. Proportions of the responses to items on the Assessment of the Appearance

Aspects of Appearance	Students' Responses					Supervisors' Responses					University Personnel's Responses				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
Page layout is consistent	86	14				86	14				100				
Design is appropriate	86	14				86	14				90	10			
Page layout is balanced, clean, and uncluttered.	89	8	3			89	8	3			80	20			
Important content is visible without scrolling.	83	14		3		83	14		3		80	20			
Purpose of the site and the pages within it are immediately clear.	83	14	3			83	14	3			80	20			

**Figures are in percentage.*

Structure and Navigation

All students agreed that the navigation is easy to understand and use and believe that they can get to the page of choice with the least number of clicks. Big majority of them with 97 per cent taught the purpose of each page is identified and thinks that users can get to information with a minimal number of clicks. Training Supervisors confirmed that the navigation is easy to understand and use and that users can get to information with a minimal number of clicks. Most of them agreed that the content of the system is logically arranged and 97 per cent of them think that the purpose of each page is identified and that there is an obvious method

of navigating between different sections of the site. Only 3 per cent think that content of the system is not logically organized. All the university personnel agreed that the content of the system is logically arranged, and that the navigation of each page is identified. Majority of the respondents favorably viewed the content of the site logically organized. Also, all can get to information with a minimal number of clicks, find the system having an obvious method of navigating between different sections of the site and agreed that the purpose of each page is identified in the system. See Table 2.

Table 2. Proportions of the responses to items on the Assessment of Structure and Navigation

Aspects of Appearance	Students' Responses					Supervisors' Responses					University Personnel's Responses				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
The content is logically organized	83	11	3			83	11	3			100				
Navigation is easy to understand and use	89	11				89	11				100				
Purpose of each page is identified	80	17	3			80	17	3			90	10			
User can get to information with minimal number of clicks	91	9				91	9				100				
Navigation is seen in every part of the site	86	11	3			86	11	3			100				

*Figures are in percentage.

Content

Almost all the students responded favorably in terms of content reflecting the purpose of the system, appropriate for the intended audience, sufficient to meet user needs and expectations, and being readable. Only 3 per cent of them see the content being insufficient. Almost all the training station supervisors responded favorably in terms of content reflecting the purpose of the system, appropriate for the intended audience,

sufficient to meet user needs and expectations, and being readable. There is only a 3 per cent of them did not agreed with the sufficiency of its content. All university personnel responded favorably in terms of being able to reflect the purpose of the system, appropriate for the intended audience, sufficient to meet user needs and expectations, and being readable. See Table 3.

Table 3. Proportions of the responses to items on the Assessment of the Content

Aspects of Appearance	Students' Responses					Supervisors' Responses					University Personnel's Responses				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
Content reflects the purpose	68	31	1			89	11				100				
Content is appropriate	71	25	4			86	11	3			80	20			

for the intended audience.										
Content is sufficient to meet user needs and expectations	63	34		3	83	14	3		80	20
Contents are readable.	70	27	3		83	17			80	20
Specific content can be easily found.	55	41	4		89	11			90	10

**Figures are in percentage.*

Usability

Students agree that the form fields are arranged in logical order. Almost all of them can view the site without unintended horizontal scrolling and find the skills required to use the system's features appropriate for its intended audience. Meanwhile, almost all supervisors, with 97 per cent, think that the system is cross-browser and cross-platform compatible while 94 per cent of them agreed that all the components of the system is functional and that the skills required needed to use the system's feature is

appropriate for its intended audience. The total number of instructors agreed that the form fields are arranged in logical order, can view the site without unintended horizontal scrolling and find the skills required to use the system's features appropriate for its intended audience. Also, all of them consider the system being cross-browser and cross-platform compatible and that all the components of the system are functional. The usability of has also been rated positively. See Table 4.

Table 4. Proportions of the responses to items on the Assessment of Usability

Aspects of Appearance	Students' Responses					Supervisors' Responses					University Personnel's Responses				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
Cross-browser and cross-platform compatible.	62	34	4			86	11	3			90		10		
Can be viewed without unintended horizontal scrolling.	58	39	3			86	14				90		10		
Form fields are arranged in	61	38	1			86	14				100				

**logical
order.**

**Components
are
functional.**

62 34 4 80 14 6 90 10

**Skills
required to
use features
are
appropriate
for its
intended
audience.**

65 32 3 83 11 6 100

**Figures are in percentage*

Reliability

Almost all the students agreed that the system can validate inputs and can correctly retrieve records. Also, students find that the appropriate information and messages correctly displayed, the records are secured from unauthorized use, and outputs supported by report generation. Majority of the training station supervisors agreed that the records are secured from

unauthorized use, the system can correctly retrieve records, and the outputs are supported by report. Most of them perceive that the system can validate inputs and that appropriate information and messages are correctly displayed. The system has been rated favorably by all university personnel, though there are only about 8 per cent to 11 per cent who are unsure about the different aspects. See Table 5.

Table 5. Proportions of the responses to items on the Assessment of Reliability

Aspects of Appearance	Students' Responses					Supervisors' Responses					University Personnel's Responses				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
Can validate inputs.	66	33	1			81	11	8			80	12	8		
Can correctly retrieve records.	71	28	1			80	11	9			80	11	9		
Appropriate information and messages are correctly displayed.	66	32	2			78	11	11			77	12	11		
Records are secured from unauthorized use.	62	35	3			86	6	8			86	6	8		
Outputs are supported by report	61	35	4			80	11	9			80	11	9		

generation.

**Figures are in percentage.*

Comparing the outcomes of the feedback from the three (3) potential users of the system, the proposed online evaluation system is relatively rated positively in all five (5) aspects: appearance, structure and navigation, content, usability, and reliability. These figures suggest

the high potential of acceptability and adaptability of the system in the information management system of the on-the-job trainee deployment of students. Summary of findings is presented in Table 6.

Table 6. Weighted Mean of User Feedbacks by Criterion

<i>Criteria</i>	<i>Students</i>	<i>Supervisor</i>	<i>University Personnel</i>	<i>Mean Rating</i>
Appearance	4.81	4.83	4.86	4.83
Structure and Navigation	4.82	4.82	4.86	4.83
Content	4.61	4.84	4.86	4.77
Usability	4.59	4.81	4.94	4.78
Reliability	4.63	4.70	4.70	4.68
Overall Rating by User	4.69	4.80	4.84	

**Mean Rating is based on the average of ratings of three (3) target users given equal weight.*

DISCUSSIONS

Since the ease of use is one aspect evident in the comments of target users, the system flow can be said to be highly favorable. The replacement of manual computation adds ease to users since giving grades to students becomes paperless, hence, decrease in the load of paper works.

Suggestions on the inclusion of a comment box for the raters and name of evaluator/s may also be considered as a point of improvement after consultation with the concerned individual/s regarding confidentiality and anonymity of information.

With the common trend in the favorable responses of the intended users of the website and mobile application, the system can be said to have a potential of being adapted as one of the components in the implementation of on-the-job training of students. This site can be a useful tool in facilitating a seamless feedback system to keep track of the performance of students' on-the-job experience of students on the training station, and record of OJT-related information of students and training stations.

Having a dominantly positive evaluation of the site, higher education institutions must consider employing tools like this system to effectively implement and monitor a 360°-feedback system in partnering with industries in the molding future professionals.

Conclusion

The development of a web-based evaluation system as an information and communication tool for managing Practicum courses is a favorable medium for its target users. The different aspects of the system which include: (1) appearance; (2) structure and navigation; (3) content; (4) usability; and (5) reliability, are found to be very satisfactory. Aside from the numerical rating included in the initial design and content of the system, the suggestion of users to include a text box for qualitative feedback can be considered as an advantageous add-on in the features for it makes the system accept both quantitative and qualitative data from users.

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