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Evolution of View React Platform: Teaching Effectiveness Evaluation

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ABSTRACT

This study aimed to develop the evolution of the View React Platform: Teaching Effectiveness Evaluation, which helps the evaluation committee offer an offline evaluation system by evaluating the faculty at the end of the semester.
This study aimed to track the faculty's strong and weak performance ratings and teaching effectiveness evaluation.
This study allows the evaluators to rate the faculty for teaching effectiveness evaluation through numerical rating and giving remarks, either negative or positive, with the aid of offline connectivity.
Furthermore, this study helps the evaluation committee chairman easily calculate and generate reports of teaching effectiveness evaluations at the end of the semester.
The project was tested at the Northern Iloilo State University Batad Campus, Batad, Iloilo. The Evolution of View React was developed using MySQL and Linux as the backend of the project.
The respondents were five (5) faculty, fifteen (15) students, and three (3) IT experts. The researcher used the International Organization for Standardization (ISO) 25010 for the evaluation of software in terms of its functional suitability, performance efficiency, compatibility, usability, reliability, security, and maintainability. The mean was utilized to examine and interpret the data. All means in each characteristic were interpreted as "excellent." The result proved that the Evolution of View React Platform: Teaching Effectiveness Evaluation has excellent operations and functions.

Keywords: View React Platform, Teaching Effectiveness, Educational Evaluation, Platform Evolution, Educational Technology, Learning Outcomes.

I. INTRODUCTION

One of the critical challenges that higher education institutions face is the volume of data and how to use it to improve the quality of academic programs, services, and administrative choices. [1][2] Evaluation of teaching efficacy is critical for ensuring student learning and forming the basis for organizational decision-making. Determining the degree of instructional effectiveness evaluation by the student, self, and the direct supervisor is a communal exercise. Each course's questionnaire, which includes questions regarding the learning tasks, is typically used for evaluation. [3]
According to [4], the assessment is frequently carried out by having the students respond to questions using the Linkert scale and gathering the numerical evaluations to control the faculty member's assessment of their success in teaching. Students can write their opinions about their subject teachers in the comments areas of the assessment forms. Due to the lack of electronic text analyzers, the assessment usually does not process the written remarks in this area. [5] This written critique may include pertinent comments about the course, instructor expertise, timeliness, and classroom management. By analyzing the successful data, administrators

and faculty members can consider how best to handle student concerns in their faculties. A few difficulties arise quickly from the feedback based on the Linkert scale.

Although it can be difficult to challenge the reasoning behind metric-based teaching effectiveness evaluation results, they are a valuable tool for characterizing the caliber of instruction. While regular text feedback does not factor into the evaluation grading system for teaching effectiveness, it can facilitate the administrator's identification of the faculty's strong and weak points. These impressions can be utilized to design the training and seminar-based faculty development program or to carry out the appropriate prompt action. Coaching and mentoring are necessary to address critical difficulties in the evaluation of teaching effectiveness. Given that written comments are more informative than numerical assessments, the administrator may be able to determine whether the numerical ratings are based on a specific pair of remarks by communicating the responses in a quantitative format, such as the average mood rating. As a result, use a written response to determine the teaching effectiveness evaluation rating. Opinion mining systems can be developed using current data mining technology and text analytics techniques. Sentiment analysis is one of the uses for natural language processing.

Sentiment refers to a person's perspective on ideas, attitudes, and feelings. Sentiment analysis's primary goal is to analyze a set of words to ascertain their impression purposefully. Emotions are represented by polarity, which may be both positive and negative. The polarity score's sign determines whether the overall feeling is positive or negative. In the student-faculty review, students may provide neutral, positive, or negative textual input. Thus, sentiment analysis is the ideal study approach. Opinion mining is a subfield of classification that involves classifying an opinionated document according to whether it contains positive or negative comments. It is sometimes referred to as sentiment classification on the document level. It aims to derive the author's overall perspective from opinionated writing. The technique of enabling technology to extract opinions from natural language writings written by humans is known as opinion mining.

Additionally, it involves extracting information from subject text, which is separated into objective and subjective text. An accurate book provides a precise account of certain events and facts. Personal text expresses opinions and attitudes about individuals and events.

However, not all cases- particularly in areas where persons are evaluated- have paperwork that must be handled and expressed in a single language. Sentence expression in a single language is a widespread technique in sentiment analysis. However, translation necessitates keeping the sentence's meaning intact after conversion, which is difficult for machine translators and far more complex and time-consuming for human translators. The similarity to a single language is the basis for evaluating training efficiency.

This project aims to develop software that any institution can use to evaluate how effectively a teacher is doing their duties. The goal is to assess how the qualitative rating analysis enhances the quantitative rating analysis and to assign a particular weight to the students' narrative responses as part of the performance rating scale [6].

II. METHODS AND MATERIALS

A. Requirement gathering and analysis phase

The researcher conducted interviews with the management of Northern Iloilo State University-Batad Campus to learn about the users' demands.

These include system utilization, user account, and development time. These were the general questions posed during the requirements-gathering process.

B. Design phase

Following identifying the requirements, the second stage involved developing a system design. In this step, the system architecture was presented.

Although the design was not detailed, the system gave the users an idea of how the entire process operates. The design helped develop the system to run faster and easier.

This phase included talks on the system's design and flow. The researcher developed the system using PHP as the programming language and MYQSL as the database.

C. Coding phase

The actual coding started as soon as the system design documentation was obtained. The software development life cycle's most extended phase was the coding phase. The software was developed in PHP, and the database was stored in MyQSL.

D. Testing phase

During the testing phase, the coding was checked to ensure the product complies with the criteria. At this stage, non-functional testing was also done. Testing was done on the program in four stages before it was put to use: unit, integration, system, and acceptability testing.

E. Deployment phase
The system was deployed and given to end users for use once the project team verified that it functioned effectively. With the system entering production, the deployment phase marked the end of the software development life cycle (SDLC).

F. Maintenance phase
At this stage, corrective maintenance was applied. Arising difficulties and issues with the system were addressed to ensure and maintain its functions and capabilities, allowing the end-users to experience the utmost efficiency of the system itself.

III. RESULTS AND DISCUSSION

A. Summary Evaluation Results Evaluated by Students
The system evolution of view react was evaluated by fifteen (15) students from Northern Iloilo State University, Batad Campus, Batad, Iloilo.

Table I. Summary Evaluation Results by Students

ISO 25010 Criteria	Mean	Interpretation
Functional Suitability	4.96	Excellent
Performance Efficiency	4.93	Excellent
Compatibility	4.93	Excellent
Usability	4.94	Excellent
Reliability	4.93	Excellent
Security	5.00	Excellent
Maintainability	5.00	Excellent
Over-all Mean	4.95	Excellent

Source: based on ISO 25010 standards.

As shown in Table I, the results established that the system evolution had "Excellent "quality based on ISO 25010 standards. It has "Excellent" functional suitability (M=4.96), performance efficiency (M=4.93), compatibility (M=4.93), usability (M=4.94), reliability (M=4.93), security (M=5.00), and maintainability (M=5.00).
The overall mean of 4.95 means that the system evolution of view react met the specific functions and operations at an "Excellent" level.

B. Summary Evaluation Results evaluated by Faculty
Five (5) faculty from Northern Iloilo State University, Batad Campus, Batad, Iloilo, evaluated the evolution of view react.

Table II. Summary Evaluation Results by Faculty

ISO 25010 Criteria	Mean	Interpretation
Functional Suitability	4.92	Excellent
Performance Efficiency	4.85	Excellent
Compatibility	4.79	Excellent
Usability	4.89	Excellent
Reliability	4.84	Excellent
Security	5.00	Excellent
Maintainability	5.00	Excellent
Over-all Mean	4.89	Excellent

Source: based on ISO 25010 standards.

As shown in Table II, the result established that the system evolution of view react had "Excellent "quality based on ISO 25010 standards. Accordingly, it has "Excellent" functional suitability (M=4.92), performance efficiency (M=4.85), compatibility (M=4.79), usability (M=4.89), reliability (M=4.84), security (M=5.00), and maintainability (M=5.00).
The overall mean of 4.89, interpreted as "Excellent," means that the view react system met quality assurance regarding functions and operations.

C. Summary Evaluation Results Evaluated by IT Experts
The system evolution of view react was evaluated by three (3) IT experts of the Information Technology Department from Northern Iloilo State University, Batad Campus, who specialized in software application, database administration, and security and information assurance.

Table III. Summary Evaluation Results by IT Experts

ISO 25010 Criteria	Mean	Interpretation
Functional Suitability	4.95	Excellent
Performance Efficiency	4.93	Excellent
Compatibility	4.74	Excellent
Usability	4.83	Excellent
Reliability	4.92	Excellent
Security	5.00	Excellent
Maintainability	5.00	Excellent
Over-all Mean	4.91	Excellent

Source: based on ISO 25010 standards.

As shown in Table III, the result-based "Excellent" functional suitability (M=4.95, performance efficiency (M=4.93), compatibility (M=4.74), usability (M=4.83), reliability (M=4.92), security (M=5.00), and maintainability (M=5.00).
The overall mean of 4.91, interpreted as "Excellent," made known that the system evolution of view react met its specific functions and requirements.

D. Summary of Overall Evaluation Results

Table IV. Summary of Overall Evaluation Results

ISO 25010 Criteria	Mean	Interpretation
Functional Suitability	4.95	Excellent
Performance Efficiency	4.91	Excellent
Compatibility	4.82	Excellent
Usability	4.89	Excellent
Reliability	4.90	Excellent
Security	5.00	Excellent
Maintainability	5.00	Excellent
Over-all Mean	4.92	Excellent

Source: based on ISO 25010 standards.

The system evolution of view react was evaluated by five (5) faculty, fifteen (15) students, and three (3) IT experts.
As shown in Table IV, the results confirmed that the system evolution of view react has "Excellent "quality based on ISO 25010 standards. In sum, it has "Excellent" functional suitability (M=4.95), performance efficiency (M=4.91), compatibility (M=4.82), usability (M=4.89), reliability (M=4.90), security (M=5.00), and maintainability (M=5.00).
With a total mean of 4.92, the result validated that the system evolution of view react met the International Standard set by the ISO.

IV. Final Considerations

Evolution of View React is a system for offline use to evaluate faculty. It allows the evaluation committee to manage the assessment, student, faculty, and questionnaire modules. It enables the evaluation committee to determine the evaluators.
Evolution of View React was developed to help the committee of evaluation continue offering its users the ability to conduct the teaching effectiveness evaluation of the faculty to improve teaching effectiveness.
The view response evolution was developed and designed by the researcher using the Boyce prototyping technique. The researcher utilized this model to show and explain how the project was tested and executed.
The progress of View React's excellent software quality was tested using ISO 25010 standards for functional suitability, performance efficiency, compatibility, usability, reliability, security, and maintainability. The evolution of view react was evaluated by five (5) faculty members, fifteen (15) students, and three (3) IT experts of the Information Technology Department from the Northern Iloilo State University, Batad Campus, Batad, Iloilo.
The results established that the quality of the evolution of view react met the International Standard set by ISO 25010. The results revealed that the Evolution of View React Platform: Teaching Effectiveness Evaluation has excellent quality and performance that could bring about satisfaction and fulfillment to its users.

Conclusion

Based on the results, the following conclusions are:
1) The evolution of view react was designed, developed, and tested.

2)The project was completed in terms of its intended objectives of offering offline evaluation to faculty and students who are the evaluators.
3)The evolution of view react met the ISO standards regarding functional suitability, performance efficiency, compatibility, usability, reliability, security, and maintainability. As expected, the evolution of view react is suitable for its specific functions and operations.
4)Evolution of View react Platform: Teaching Effectiveness Evaluation has an excellent quality that can bring about fulfillment to its users.

REFERENCE

[1] A. M. Abaidullah, N. Ahmed, and E. Ali, "Identifying Hidden Patterns in Students' Feedback through Cluster Analysis," *Int. J. Comput. Theory Eng.*, vol. 7, no. 1, pp. 16–20, 2014, doi: 10.7763/ijcte.2015.v7.923.

[2] N. Delavari, S. Phon-Amnuaisuk, and M. R. Beikzadeh, "Data mining application in higher learning institutions," *Informatics Educ.*, vol. 7, no. 1, pp. 31–54, 2008, doi: 10.15388/infedu.2008.03.

[3] C. Pacol and T. Palaoag, "Bilingual Lexicon Approach to English-Filipino Sentiment Analysis of Teaching Performance," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 1077, no. 1, p. 012044, 2021, doi: 10.1088/1757-899x/1077/1/012044.

[4] Q. Rajput, S. Haider, and S. Ghani, "Lexicon-Based Sentiment Analysis of Teachers' Evaluation," *Appl. Comput. Intell. Soft Comput.*, vol. 2016, pp. 1–12, 2016, doi: 10.1155/2016/2385429.

[5] M. Wook, S. Vasanthan, S. Ramli, N. A. M. Razali, N. A. Hasbullah, and N. M. Zainudin, "Exploring students' feedback in online assessment system using opinion mining technique," *Int. J. Inf. Educ. Technol.*, vol. 10, no. 9, pp. 664–668, 2020, doi: 10.18178/ijiet.2020.10.9.1440.

[6] F. F. Balahadia, M. C. G. Fernando, and I. C. Juanatas, "Teacher's performance evaluation tool using opinion mining with sentiment analysis," *Proc. - 2016 IEEE Reg. 10 Symp. TENSYMP 2016*, pp. 95–98, 2016, doi: 10.1109/TENCONSpring.2016.7519384.

[7] I. Technology, "Online Faculty Monitoring and Evaluation System," 2021.

[8] M. Ravi and S. J. Johnson, "ANALYSIS OF STUDENT FEEDBACK ON FACULTY TEACHING USING SENTIMENT ANALYSIS AND NLP TECHNIQUES BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING Submitted by Under the guidance of," pp. 2019–2020.

[9] M. O. F. Education, "Supervision and the Effectiveness of Teachers Performance Evaluation in a Center for Special Needs A Case Study ةسارد ةلاح لإا فارش ةيلاعفو ميقت ءاداً نيسردملا يوذل زكرم يف تاجايتحلاا قصاخلا by EMAN ABDELKARIM MOHAMMED AHMEDANI," no. March, 2021.

[10] O. Abiodun Ayeni, A. Mercy, T. A.F, and M. A.S, "Web-Based Student Opinion Mining System Using Sentiment Analysis," *Int. J. Inf. Eng. Electron. Bus.*, vol. 12, no. 5, pp. 33–46, 2020, doi: 10.5815/ijieeb.2020.05.04.

[11] E. C. Papanastasiou, "Teacher Evaluation - Theories and Practice," *Educ. Resour. Inf. Cent.*, 1999.

[12] N. Cedex, A. Harb, and P. Poncelet, "Web Opinion Mining : How to extract opinions from blogs ? Categories and Subject Descriptors," *Hum. Factors*, pp. 211--217, 2008, [Online]. Available: http://portal.acm.org/citation.cfm?id=1456223.1456269

[13] L. Zhang and Z. Lu, "Applications of association rule mining in Teaching Evaluation," vol. 237, no. Hsmet, pp. 331–334, 2018, doi: 10.2991/hsmet-18.2018.64.

[14] C. Ding and H. Sherman, "Teaching Effectiveness and Student Achievement: Examining the Relationship, Educational Research Quarterly, 2006-Jun," *Educ. Res. Q.*, vol. 29, no. 4, pp. 40–51, 2006, [Online]. Available: https://eric.ed.gov/?q=teacher+knowledge%2C+beliefs%2C+teaching+effectiveness+pubyearmin%3A2002&ft=on&ff1=subTeacher+Effectiveness&pg=41&id=EJ781882

[15] D. S. Lynn, "online student rating of instruction," *new deriction Teach. Learn.*, 2003, [Online]. Available: ooks.google.com.ph/books?hl=en&lr=&id=rGwknYyS2sYC&oi=fnd&pg=PA31&dq=.Hardy,+N.,+Online+Ratings:+Fact+and+Fiction,+In+Online+Student+Ratings+of+Instruction,+D.+L.+Sorenson+and+T. D.+Johnson+(eds.),+New+Directions+for+Teaching+and+Learning.+JosseyĞBass:+San

[16] ISO/IEC 25010, "ISO/IEC Systems and software engineering — Requirements and Evaluation," *Ieee*, vol. 2011, no. IEEE, 2011.