IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

Stakeholders' Satisfaction on Institutional Assessment: A Proposal for Unified Feedback Management System with Text Analytics and Sentiment Analysis

Rea Mie A. Omas-as and Riah E. Encarnacion
0000-0003-3021-4280 and 0000-0003-3760-7458
Surigao Del Norte State University, Surigao City, Philippines
romasas@ssct.edu.ph, rencarnacion@ssct.edu.ph

Abstract: *In higher educational institutions, the collection and analysis of stakeholder feedback, comprising students, parents, faculty, and staff, plays a crucial role in assessing the effectiveness of various aspects of the institution's operations. The process of manually evaluating and consolidating this information is both time-consuming and prone to errors. Thus, delays in data evaluation and consolidation lead to delays on generating reports. To address this challenge and to align with the ISO 9001 requirements, the study aims to enhance the customer satisfaction by focusing on feedback collection of services, academic programs, and automation of client satisfaction survey. The descriptive research design involves a combination of qualitative and quantitative methods to gather comprehensive insights and address the project's objectives effectively. Data analysis techniques such as frequency distribution, weighted mean score, and standard deviation help identify patterns and trends in the gathered data. Employing mix-methodology research approach ensures a comprehensive understanding of stakeholders' feedback needs and preferences for the proposed system that is responsive to stakeholders' input and effectively addresses the challenges of the current feedbacking process. The findings of this study underscore the importance of transitioning to a more efficient and automated feedback management system to enhance stakeholder satisfaction, improve institutional performance, and support data-driven decision-making. The proposed web-based Stakeholder Feedback management system holds the potential to address the identified challenges and contribute to the continuous improvement of the institution's feedback management practices.*

Keywords: Web-based Stakeholders Feedback management system, institutional assessment, customer feedback, sentiment analysis.

I. INTRODUCTION

In educational institutions, the collection and analysis of stakeholder feedback, comprising students, parents, faculty, and staff, plays a crucial role in assessing the effectiveness of various aspects of the institution's operations [1]. The customer feedback process is a critical part of the quality management system and should therefore receive adequate attention during a third-party audit. Feedback from the customer is one of the primary performance indicators that can be used to judge the overall effectiveness of the QMS as stated in ISO 9001 Auditing Practices Group Guidance on Customer feedback [2]. By actively seeking input through the survey, the institution not only values the perspectives of its diverse stakeholders but also positions itself to get valuable insights into the strengths and areas for improvement across its services, academic programs, and overall environment. Presently, the Saint Michael College of Caraga employs Google Forms as a tool for the gathering of feedback. Google form is an application in the form of a template or worksheet or questionnaire that can be used independently or together for the purpose of getting user information very efficiently. However, the process of manually evaluating and consolidating this information is both time-consuming and prone to errors. Thus, delays in data evaluation and consolidation lead to delays on generating reports.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

To address this challenge and to align with the ISO 9001, the overall objective of the study is to enhance the customer satisfaction by proposing a web-based feedback management system that focus on feedback collection of services, academic programs, and automation of client satisfaction survey. By creating a comprehensive system that automatically evaluates the collected data and produces consolidated reports, the institution aims to streamline its feedback analysis process, stakeholder engagement, and data-driven decision-making. This study does not only enhance the accuracy and efficiency of data consolidation but also contributes to a more systematic evaluation of the institution performance based on real-time stakeholder feedback.

II. OBJECTIVES OF THE STUDY

The objectives of the study can be formulated as follows:

- To evaluate the satisfaction level of stakeholders on institutional assessment of Saint Michael College of Caraga.
- To propose a web-based unified feedback management system using text analytics and sentiment analysis.
- To formulate recommendations for the enhancement of feedback management system for educational efficacy.

III. RELATED LITERATURE

3.1 Institutional Assessment in Higher Education

Georgios Rigopoulos (2022) discussed the assessment and feedback mechanisms which are crucial for effective teaching in higher education and are closely monitored. In the UK, the annual student satisfaction surveygathers students' perceptions on these aspects and provides results to help institutions identify weaknesses, adjust strategies, and improve teaching effectiveness. The study investigated how assessment and feedback predict overall student satisfaction, focusing primarily on business schools and using an officially published dataset. Regression analysis reveals that assessment and marking are significant predictorsof overall student satisfaction [3].

3.2 Artificial Intelligence and Machine Learning in Customer Feedbacking

Narayan, R., Gehlot, et.al., (2022) claimed that customer feedback plays a crucial role in the rapid advancement of services in industries such as hospitality. Traditionally, feedback collection relied on methods like feedback diaries during customer visits, which had significant limitations. In the hospitality sector, establishing a robust digital infrastructure is vital for obtaining high-quality feedback from customers. Digital technologies have already demonstrated their ability to improve hospitality services by facilitating real-time data-driven decisions. The integration of technologies such as the Internet of Things (IoT), artificial intelligence (AI), cloud computing, and big data analytics is instrumental in enhancing customer satisfaction and service quality. It demonstrated that leveraging advanced technologies like IoT, cloud computing, AI, and big data enables the development of automated feedback systems capable of making intelligent decisions and providing valuable insights [4].

Also, in a study carried out by Belen M. Tapado et. al., (2023) captured the results of the Client Satisfaction Survey for School Year 2015-2016 to School Year 2020-2021 through a DSS-enabled Client Feedback System. Interpretation of these captured data were made and action for the improvement of service delivery for each department in this university was recommended using the Decision Support System (DSS) technique [5].

Sofhian Fazrin Nasrulloh et. al., (2018) applied Educational feedback System to evaluate quality of education in terms of teaching. This system enhanced the evaluation of process effectiveness and efficiency to generate precise analytical outcomes. The framework outlined in their research has been employed at the Educational Higher School of Muhammadiyah Kuningan to help evaluate lecturers based on student feedback. The feedback system has demonstrated its capability to gather the necessary data for analysis, comprising 584,388 quantitative data points and 11,070 qualitative data points. Through the sentiment analysis process, poorly constructed essays are filtered out, resulting in a sentiment accuracy rate of 91%. Both questionnaire types and the subsequent analysis exhibit a high correlation coefficient of 0.73. Future studies may explore alternative sentiment analysis methods, such as lexicon-based approaches or Naive Bayes classifiers, to assess whether this yield improved accuracy compared to the SVM model employed in this study [6].

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

Universities routinely gather feedback from students upon course completion to enhance teaching methods, curriculum, and overall student learning experiences. However, effectively and efficiently interpreting qualitative feedback can pose challenges, often resulting in this valuable data being underutilized. To address this, Venky Shankararaman et. Al (2017), introduces a learning analytics solution that employs text analytics techniques to quantify and analyze qualitative feedback provided by students. The paper proposes a conceptual framework for analyzing student feedback, offering a reference for stakeholders to consider how both qualitative and quantitative feedback can inform decisions regarding teaching, learning, and curriculum enhancements. Additionally, a case study is presented in which the framework is applied to several courses within a single school, utilizing the prototype Student Feedback Management System (SFMS) [7].

3.3 Online Tools for Gathering Customer Feedback

Opoku, R.A. and Khan, M.N, (2004) have studied and described the components of an Internet -based feedback system. The online feedback collection tools identified in this study are email, Hyperlink (contact us), customer discussion forum and e-meeting. Based on the study, most companies rely on email to gather customer feedback online. Companies also used questionnaires to gather feedback from their client as supplement to the online tools. However, feedback gathered are not analyzed scientifically to measure service standards, evaluate staff, branch or department. The feedback management systems in these companies do not support the development of customer drive standard [8].

3.4 Development of Web- Based Feedbacking System

Fahad Layth Malallah et. al., (2020) designed and implemented a framework for student feedback using web development tools. The implementation recorded 4282 records, as each record represents a student application. Student feedback web-based framework has a positive impact on the management's progressing in terms of handling the feedback application. It can do processes while storing and retrieving useful information more efficiently than ordinary paper-based feedback. It has superior accuracy than paper-based as it is free of errors[9].

3.5 Synthesis

The significance of customer feedback in organizational advancement has been extensively analyzed. Narayan et al. emphasize its essential role in industries like hospitality, where traditional methods such as feedback diaries during customer visits are gradually being replaced by robust digital infrastructures. This transition facilitates real-time data-driven decisions, with technologies like IoT, AI, cloud computing, and big data analytics playing a crucial role in enhancing service quality and customer satisfaction. Similarly, Tapado et al. [5]conducted a Client Satisfaction Survey over multiple school years, employing a DSS-enabled Client Feedback System to interpret captured data. Their study underscores the effectiveness of using decision support systems to recommend improvements in service delivery for each department within a university setting. Furthermore, Nasrulloh et al. [6]introduced an Educational Feedback System aimed at evaluating teaching quality. This system, implemented at the Educational Higher School of Muhammadiyah Kuningan, effectively gathers and analyzes both quantitative and qualitative feedback from students, demonstrating high accuracy in sentiment analysis and correlation coefficient. In higher education, Shankararaman et al. [7]propose a learning analytics solution to systematically analyze qualitative feedback provided by students. Their conceptual framework offers valuable insights for stakeholders to enhance teaching, learning, and curriculum through informed decision-making. Transitioning to online tools for customer feedback, Opoku and Khan [8]identified various components of internet-based feedback systems, including email, hyperlinks, customer forums, and e-meetings. However, they observed that feedback gathered through these channels is often not scientifically analyzed to measure service standards or evaluate staff performance. Finally, Malallah et al. [9] contributed to the development of web-based feedback systems by designing and implementing a framework for student feedback. Their study highlights the positive impact of web-based frameworks on feedback management, emphasizing their efficiency and accuracy compared to traditional paper-based methods.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

IV. METHODOLOGY

4.1 Research Approach

The research approach for developing a web-based feedback management system involves a combination of qualitative and quantitative methods to gather comprehensive insights and address the project's objectives effectively. Qualitative methods, such as interviews and focus groups, are utilized to understand stakeholders' needs, preferences, and challenges associated with the current feedback management system. These methods allow for an in-depth exploration of stakeholders' perspectives, providing rich qualitative data for system design and improvement. On the other hand, quantitative methods, including surveys and data analysis, are employed to collect and analyze large-scale feedback data efficiently. Surveys enable the collection of feedback from a wide range of stakeholders, while descriptive statistical analysis such as frequency and deviated mean help identify patterns and trends in the feedback data. By employing both qualitative and quantitative methods, the research approach ensures a comprehensive understanding of stakeholders' feedback needs and preferences, facilitating the development of a web-based feedback management system that is responsive to stakeholder input and effectively addresses the challenges of the current feedbacking process.

4.2 Research Instrument

The research instrument of the study plays a crucial role in gathering comprehensive feedback from stakeholders efficiently. Utilizing online surveys questionnaire via Google Form is a common approach to capture quantitative and qualitative data regarding stakeholders' experiences, preferences, and suggestions related to the feedbacking process. The survey instrument comprises structured questions designed to gather specific information about different aspects of the feedback management system in the form of Likert scale, ranking, and rating scales. In addition to structured questions, open-ended questions provide stakeholders with the opportunity to express their opinions, suggestions, and concerns in their own words allowing for more detailed and nuanced responses.

4.2.1 Survey Questionnaire

The survey begins with a focus on gathering demographic information in Part I: Stakeholder's Profile. Respondents are asked about their gender, age, role and length of service in the college. These details help create a clearer picture of the respondents and understand how various factors might influence their perspectives on the institutional assessment process. Second part is the Satisfaction Level on Institutional Assessment in which the survey delves into assessing respondents' satisfaction with different aspects of the institutional assessment at the college. Through a Likert scale ranging from very satisfied (1) to very dissatisfied (5), respondents are prompted to rate their satisfaction levels on transparency, clarity of assessment criteria, feedback mechanisms, efficiency of assessment practices, user-friendliness of the interface, and other relevant factors. The third part gauged the respondents' familiarity with the web-based stakeholder feedback management system. The respondents are asked to anticipate specific features that could enhance efficiency compared to manual methods, providing valuable insights into their expectations and preferences regarding technological advancements in feedback mechanisms. The fourth part, is the recommendations/suggestions that invite respondents to share their experiences and observations, offering open-ended recommendations to enhance the overall effectiveness and stakeholders' satisfaction with the institutional assessment process at St. Michael College Caraga.

4.2.2 Interview

By conducting series of interviews with key stakeholders is a crucial preparatory step before commencing the study on proposing a web-based feedback management system. It involves engaging with key stakeholders to understand their perspectives, experiences, and challenges with the current feedback management system. During the interview, researchers explore stakeholders' experiences with the existing feedback management system, inquire about the methods used to collect feedback, the ease of access to feedback channels, and any challenges encountered in providing or accessing feedback. The stakeholders were asked about their expectations for an ideal feedbacking platform, including desired features, functionalities, and usability considerations. Through open-ended questioning and active listening, researchers validate assumptions about the need for a web-based feedback management system.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

Researchers assesses whether stakeholders perceive a gap or opportunity for improvement in the current feedbacking process that could be addressed through a digital solution.

4.3 Participants of the Study

The participants of the study include the different stakeholders of Saint Michael College of Caraga such as the administrators, faculty and staffs, parents or guardians, and students.

4.4 Sampling Method

The study used non-probability sampling techniques. Due to limited time and resources, the researchers employed the convenience sampling method in selecting the participants as a research population.

4.5 Data Gathering Procedure

In this study, the data gathering procedure involves collecting both primary and secondary data to address the research objectives effectively. The primary data are collected directly from stakeholders at Saint Michael College of Caraga through surveys and interviews while the online survey was administered using Google Forms where the respondents provided their feedback on various aspects of the institution's operations, services, and overall environment. The surveys include structured questions with predefined response options to gather quantitative data on satisfaction levels, preferences, and perceptions. Additionally, open-ended questions are included to allow stakeholders to provide qualitative insights, suggestions, and concerns in their own words. Interviews are conducted with key stakeholders to gain in-depth understanding and perspectives on the challenges and needs related to feedback management at the institution. Secondary data are gathered from existing literature, reports, and documents related to feedback management practices, quality management systems, and educational institutions. This includes academic journals, books, articles, conference proceedings, institutional reports, and relevant online resources. Secondary data will provide background information, theoretical frameworks, and insights into best practices and strategies for improving feedback management in educational settings.

4.6 Data Analysis

The data analysis process in this study involves both quantitative and qualitative methods to analyze and interpret the data collected from online surveys. The analysis aims to identify patterns, trends, and insights relevant to the research objectives and to inform the development of the Web-Based Unified Feedback management system. Statistical concepts and qualitative analysis techniques are employed to analyze the data effectively.The study used deviated mean and frequency for Quantitative Data Analysis. Standard deviation and weighted mean score were calculated to measure the average deviation of each data point from the mean of the datasets. The results provided valuable insights into the variability or dispersion of responses to specific survey questions. Table 1.0 presented below is used to describe the weighted mean score derived from the level of assessment of the respondents.

Table 1: The Interpretation of Range of the Weighted Mean

Range of the Weighted Mean	Interpretation
4.51 – 5.00	Very Satisfied (for the questions asked) Strongly Agree (for the questions asked)
3.51 – 4.50	Satisfied (for the questions asked) Agree (for the questions asked)
2.51 – 3.50	Moderately Satisfied (for the questions asked) Moderately Agree (for the questions asked)
1.51 – 2.50	Dissatisfied(for the questions asked) Disagree (for the questions asked)
1.50 and below	Very Dissatisfied (for the questions asked) Strongly Disagree (for the questions asked)

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

V. RESULTS AND DISCUSSION

This chapter discusses the analysis and interpretation of the data gathered from participants' responses in answering the specific questions of the study Web-Based Stakeholder Feedback management system.

5.1 Demographics Profile of the Respondents

Table 2: The Profile of the Respondents in terms of Gender

Gender	Frequency	Percentage %
Male	35	62%
Female	21	38%
Total	56	100%

Table 2 presents the profile of the respondents according to gender. As can be seen on the table, there are 35 or 62% of the respondents are male while 21 or 38% are female. This implies that majority of the respondents are male.

Table 3: Profile of the Respondents in terms of Age

Age	Frequency	Percentage %
Under 18	1	2%
18-24	50	89%
25-34	3	5%
35-44	2	4%
45-54	0	0%
55-64	0	0%
65 and above	0	0%
Total	56	100%

Table 3 is a presentation of the frequency and percentage distribution of respondents in terms of age. The majority of individuals fall within the 18-24 age range, comprising 50 individuals or 89% of the total. The remaining age groups have smaller representations, with under 18 comprising 1 individual or 2%, 25-34 at 3 individuals or 5% of the total, and 35-44 at 4% comprising 2 individuals. There are no individuals in the older age categories (45-54, 55-64, and 65 and above).

Table 4: Profile of the Respondents in terms of Category

Category	Frequency	Percentage %
Administrator	1	2%
Faculty	1	2%
Staff	0	0%
Student	51	91%
Parent/Guardian	3	5%
Total	56	100%

Table 4 is a presentation of the frequency and percentage distribution of respondents in terms of category. The table shows a strong representation from the student population in the survey comprising 51 or 91% of the participants. There is minimal representation from other categories such as administrators 1 or 2%, faculty 1 or 2%, parents/guardians 3 or 6%, and no participants from staff.

Table 5: Profile of the Respondents in terms of length of stay at SMCC

Length	Frequency	Percentage%
Less than 1 year	8	15%
1-3 years	42	75%

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

3-5 years	3	5%
More than 5 years	3	5%
Total	56	100%

Table 5.0 presents the distribution of individuals based on the length of time they have been associated with Saint Michael College of Caraga. The majority of individuals comprising 42 or 75 %, have been associated with the entity for 1-3 years, followed by 15% or 8 individuals for less than 1 year, and 5% or 3 individuals for 3-5 years, and 5% of the total or 3 individuals for more than 5 years.

5.2 Assessment of the Satisfaction Level of the Stakeholders on the Institutional Assessment of SMCC

Table 6: Influencing Factors of Stakeholders' Level of Satisfaction on the Institutional Assessment of SMCC

No.	Question Statements	WM	Standard Deviation	Description
1	Transparency in the assessment process	3.71	3.42	Satisfied
2	Clarity of assessment criteria and objectives	3.79	3.49	Satisfied
3	Effectiveness of feedback mechanisms currently in place	3.68	3.44	Satisfied
4	Efficiency institutional assessment practices	3.66	3.40	Satisfied
5	User-friendly Google form interface	3.77	3.53	Satisfied
6	Well-structured options for providing detailed feedback	3.71	3.44	Satisfied
7	Seamless submission or access of form	3.70	3.42	Satisfied
8	Security and privacy of data	3.75	3.48	Satisfied
9	Clarify of feedback questions and options	3.71	3.44	Satisfied
	Average Weighted Mean = 3.72 (Satisfied)			

Table 6 reveals that stakeholders at SMCC are generally satisfied with various aspects of the institutional assessment process, as indicated by the average weighted mean (WM) of 3.72, which falls within the "Satisfied" range. Each question statement assessed different factors contributing to stakeholders' satisfaction. The transparency in the assessment process received a WM of 3.71 with a standard deviation of 3.42, reflecting overall satisfaction with some variability in responses. The clarity of assessment criteria and objectives scored the highest WM of 3.79 and a standard deviation of 3.49, indicating that this aspect is particularly well-received, though there are differences in opinions. The effectiveness of the current feedback mechanisms was rated satisfactorily with a WM of 3.68 and a standard deviation of 3.44, suggesting general approval but some variation in stakeholder experiences. The efficiency of institutional assessment practices, scoring a WM of 3.66 and a standard deviation of 3.40, also received satisfactory ratings, albeit slightly lower compared to other aspects. The respondents also found that Google Form interface is user-friendly, as indicated by a WM of 3.77 and the highest standard deviation of 3.53, highlighting its accessibility and ease of use despite varied experiences. The options for providing detailed feedback were also rated positively, with a WM of 3.71 and a standard deviation of 3.44, showing that stakeholders appreciate the structured feedback options available. The seamless submission or access of the form, with a WM of 3.70 and a standard deviation of 3.42, indicates that the process is generally smooth and satisfactory. Security and privacy of data received a high satisfaction score, with a WM of 3.75 and a standard deviation of 3.48, reflecting stakeholders' confidence in the confidentiality and protection of their data. the clarity of feedback questions and options was rated satisfactorily with a WM of 3.71 and a standard deviation of 3.44, indicating that stakeholders find the questions easy to understand and respond to. The positive ratings across all factors demonstrate strengths in SMCC's assessment processes, with each aspect contributing to the overall satisfaction of stakeholders. However, the variability in standard deviations suggests that while many stakeholders are satisfied, there are differences in individual experiences that might offer opportunities for further improvement.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

5.3 The Proposed Unified Feedback Management System

5.3.1 Respondents' Level of Familiarity with the Concept of a Web-Based Unified Feedback Management System

Table 7: Level of Familiarity with the Concept of a Web-Based Unified Feedback Management System

Level of Familiarity with the concept of a Web-Based Stakeholder Feedback management system	Frequency	Percentage%
Not familiar at all	8	14%
Somewhat familiar	16	29%
Moderately familiar	22	39%
Very familiar	10	18%
Total	56	100%

Table 7.0 presents the level of familiarity of a group of respondents with a Web-Based Feedback management system. There are 22 respondents, representing the highest percentage at 39%, has a moderate level of familiarity with the system, while only 10 respondents, comprising 18% of the total, shows high familiarity with the system. This indicates that the respondents are well-aware of the usability and importance of automated system for consolidating and analysing feedback for institutional assessment.

5.3.2 Respondents' Assessment on the Potential of Web-Based Unified Feedback Management System to Enhance the Current System

Based on the data presented in table 8.0, 49 (or 88%) out 56 respondents indicated that they believe that the proposed web-based Unified Feedback management system has the potential to enhance the current Feedback management system at Saint Michael College Caraga. Only 1 respondent (or 2%) disagreed with this statement, while 6 respondents (or 10%) remained neutral on the matter.

Table 8: A Web-Based Stakeholder Feedback management system Potential to Enhance the Current Feedback Management System

A Web-Based Stakeholder Feedback management system has the potential to enhance the current Stakeholder Feedback management system	Frequency	Percentage
Yes	49	88%
No	1	2%
Neutral	6	10%
Total	56	100%

5.3.3 Features and Functionalities of the Proposed Web-based Unified Feedback Management System

Table 9: Specific Features and Functionalities of the Proposed Web-Based Stakeholder Feedback Management System

Features and Functionalities of the Proposed System	Frequency	Percentage	Rank
Accessibility	33	21%	1
Real-Time Feedback	30	19%	2
Automated Notifications	14	9%	4
Customization and Scalability	10	6%	5
Data Organization and Analysis	17	11%	3
Version Control	10	6%	5
Security and Privacy	18	11%	3
Collaboration Tool	10	6%	5
Feedback Tracking and Follow-Up	17	11%	3
Total	159	100%	

Table 9.0 presents the features of a Web-Based Stakeholder Feedback management system along with their frequencies, percentages, and ranks based on respondents' preferences for enhancing efficiency in the assessment process compared

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

to manual methods. Accessibility was identified as the most significant feature, representing 33 occurrences or 21% of the respondents. Real-Time Feedback closely followed with 30 or 19% of the respondents. Data Organization and Analysis, Security and Privacy, and Feedback Tracking and Follow-Up tied for the third rank, each with 17 respondents (11%) emphasizing their importance. Automated Notifications ranked fourth with 14 respondents (9%) highlighting its value. Customization and Scalability, Version Control, and Collaboration Tool tied for fifth place, each with 10 respondents (6%) recognizing their significance.

5.3.4 Conceptual Framework of the Proposed Web-Based Unified Feedback Management System Using Text Analytics and Sentiment Analysis

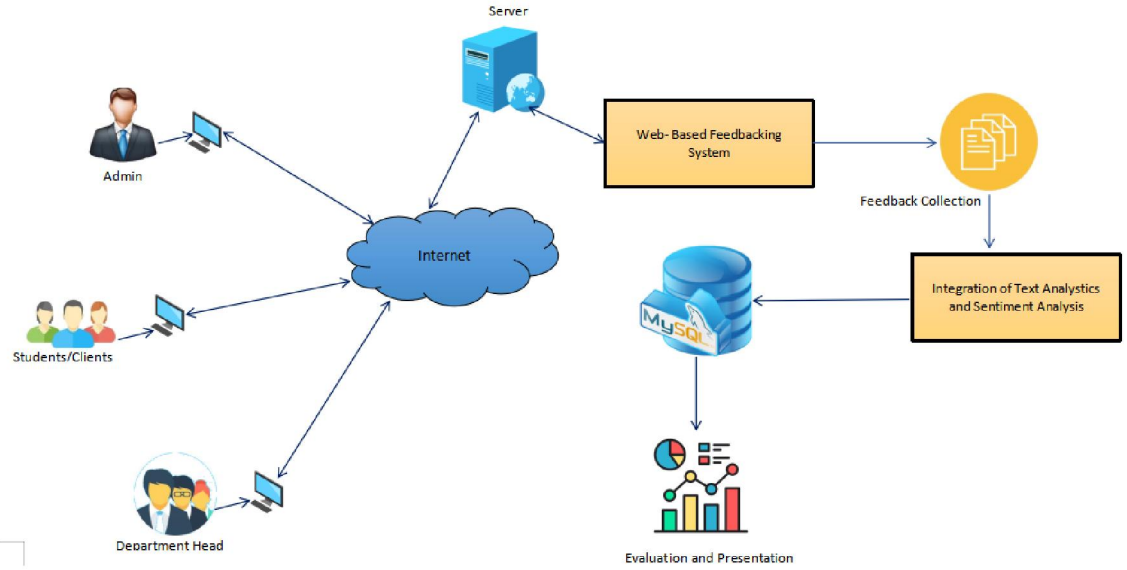

Figure 1: Conceptual Framework of the Proposed Web-Based Stakeholders' Feedback management system Using Text Analytics and Sentiment Analysis

Figure 1 depicts the conceptual framework for a Web-Based Stakeholders' Feedback management system using Text Analytics and Sentiment Analysis. The framework provides a comprehensive approach to collecting, processing, and utilizing both qualitative and quantitative feedback. By integrating advanced analytical techniques and statistical methods and ensuring seamless system integration, SMCC can gain valuable insights from stakeholders. This leads to more informed decision-making and continuous improvement in products, services, and overall operations. The framework enhances stakeholder engagement and positions the organization to respond proactively to feedback, ultimately driving better outcomes and satisfaction.

5.3.5 Development Architecture of the Proposed Web-Based Unified Feedback Management System Using Text Analytics and Sentiment Analysis

The architecture of a proposed web-based unified feedback management system utilizes text analytics and sentiment analysis. It involves several interconnected components for development using PHP, CSS, MySQL, and HTML, under the Agile methodology. The system design starts with the client side, where HTML and CSS structure and style the feedback forms and user interface. On the server side, PHP manages business logic and data processing, communicating with the MySQL database to store and retrieve feedback data, user information, and sentiment analysis results.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

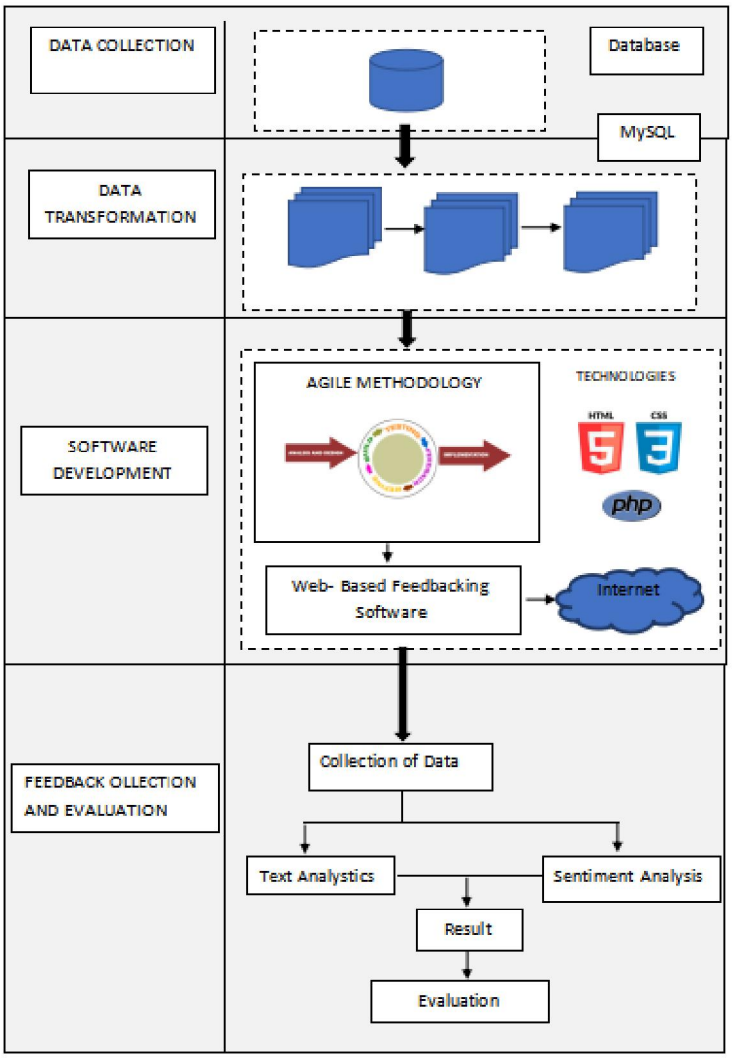

Figure 2: Architecture of the Proposed Web-Based Unified Feedback Management System Using Text Analytics and Sentiment Analysis

5.4 Recommendations to Enhance the Overall Effectiveness and Respondents' Satisfaction with Institutional Assessment of St. Michael College Caraga

This section presents recommendations regarding the overall effectiveness of institutional assessment, with each recommendation being endorsed by one respondent. The data indicates an equal distribution of responses across different aspects, with each recommendation representing 12.5% of the total responses. These recommendations encompass various areas, including access to computer systems, clear communication, transparency, inclusive participation, training and support, clear feedback, building more facilities, and providing free access to research. The equal representation of these diverse perspectives highlights the importance attributed to each aspect by at least one respondent. Collectively, these recommendations offer valuable insights into potential areas for improvement or priorities within the context under consideration.

VI. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the conduct of the study aimed at addressing the challenges faced by Saint Michael College of Caraga in manually evaluating and consolidating stakeholder feedback collected through Google Forms has been outlined. The

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

background of the study emphasized the importance of stakeholder feedback in educational institutions and highlighted the limitations of the current manual feedback evaluation process. The research exploration investigated these challenges and propose a web-based unified feedback management system to automate data evaluation and consolidation. Through a combination of qualitative and quantitative research methods, including surveys and interviews, comprehensive insights were gathered from the respondents. The results revealed a strong agreement among stakeholders regarding the need for an automated feedback management system. Key features identified for the proposed system included accessibility, real-time feedback, data organization and analysis, security and privacy, and feedback tracking and follow-up. In general, the findings of this study underscore the importance of transitioning to a more efficient and automated feedback management system to enhance stakeholder satisfaction, improve institutional performance, and support data-driven decision-making. The proposed Web-Based Unified Feedback Management System has the potential to address the identified challenges and contribute to the continuous improvement of the institution's feedback management practices.

The research findings suggest several actionable recommendations for Saint Michael College of Caraga to enhance its feedback management practices. Firstly, the institution should prioritize the implementation of a user-friendly proposed system, incorporating features like real-time feedback and robust data analysis tools. There should be clear communication and comprehensive training once the proposed system is deployed at the college to ensure effective user adoption. Regular maintenance, user engagement initiatives, and ongoing evaluation are vital to sustaining the effectiveness of the system. Future investigations could explore alternative feedback collection methods and emerging technologies while fostering collaboration with industry peers to benchmark best practices. Long-term sustainability planning should be integral to ensure continued system efficacy and support.

VII. ACKNOWLEDGEMENT

The researchers extend their profound gratitude to all individuals, particularly the respondents and the management of Saint Michael College of Caraga, who generously shared their invaluable insights and unwavering support during the course of this research endeavor. Their contributions have been instrumental in shaping the outcome, and your assistance has been sincerely appreciated.

REFERENCES

[1]. Alex, A.O.I., "An Automated and Robust Tertiary Institution Web-Based Student Complaint Management System," International Research Journal of Innovations in Engineering and Technology (IRJIET), vol. 7, no. 12, pp. 110-124, Dec. 2023. DOI: https://doi.org/10.47001/IRJIET/2023.712016.

[2]. ISO 9001 Auditing Practices GroupGuidance on: Effective Use of ISO 19011, Edition 2. 2020. https://committee.iso.org/files/live/sites/tc176/files/documents/ISO%209001%20Auditing%20Practices%20Group%20docs/Auditing%20General/APG-ISO_19011_2018.pdf

[3]. Rigopoulos, G. (2022). Assessment and feedback as predictors for student satisfaction in UK higher education. I.J. Modern Education and Computer Science, 2022(5), 1-9. MECS Press. DOI: 10.5815/ijmecs.2022.05.01.

[4]. Narayan, R.; Gehlot, A.; Singh, R.; Akram, S.V.; Priyadarshi, N.; Twala, B. Hospitality Feedback System 4.0: Digitalization of Feedback System with Integration of Industry 4.0 Enabling Technologies. Sustainability 2022, 14, 12158. https://doi.org/10.3390/ su141912158

[5]. Tapado, B.M., Bola, J.G.M., Salazar, E.T., Tablizo, Z.T., "University's Service Delivery Improvement Through a DSS-enabled Client Feedback System," International Journal of Advanced Computer Science and Applications (IJACSA), vol. 14, no. 7, 2023.

[6]. Nasrulloh, S.F., Permanasari, A.E., Kusumawardani, S.S., "A Framework of Educational Feedback System with Statistical Method and Sentiment Analysis," Advances in Social Science, Education and Humanities Research (ASSEHR), vol. 330, Proceedings of the 6th International Conference on Educational Research and Innovation (ICERI 2018).

[7]. Shankararaman, V., Gottipati, S., and Gan, S. "A Conceptual Framework for Analyzing Students' Feedback." In FIE 2017: Proceedings of the 47th Annual Frontiers in Education Conference, Indianapolis, Indiana, October 18-21, pp. 1-8, 2017. https://ink.library.smu.edu.sg/sis_research/3836.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, June 2024

[8]. Opoku, R.A. and Khan, M.N., "Customer Feedback Online: Case Studies of Swedish Manufacturing SMEs," Social Science and Business Administration Programmes, 2004:198. ISSN: 1404-5508, ISRN: LTU-SHU-04/198-SE. 2004

[9]. Malallah, F. L., Mahmood, J., Alfathe, M., & Abdullah, M. A. (2020). "Electronic student feedback management system based on web development." Science in Information Technology Letters, 1(2), 73-82.http://dx.doi.org/10.31763/sitech.v1i2.168

[10]. Kukkamalla, Vineeth, "FEEDBACK REVIEW SYSTEM USING SENTIMENT ANALYSIS" (2020). Electronic Theses, Projects, and Dissertations. 1147. https://scholarworks.lib.csusb.edu/etd/1147