DEVELOPMENT OF A MODEL FOR ONLINE STUDENTS COMPLAINT MANAGEMENT SYSTEM. A CASE STUDY OF BOWEN UNIVERSITY NIGERIA

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ABSTRACT

Recent experiences show that deficiencies in a University's complaint management system could have massive costs in time, money and damage to the individual careers and institutional reputations. This work investigated the complaint management system in Bowen University through the use of survey methodology on students to elicit information and evaluate them so as to justify the implementation of better model of the current system. The implemented model is to assist the management of Bowen University in carrying out her complaint management activities. The evaluation of the survey showed that 22 (12.1%) respondents did not prefer E-complain management system while 161 (87.9%) showed preference to an E-complain management system. On the response nature of the manual system, 8 (6.3%) confirmed that it was very fast, 18(14.1% syndicated that it was fast, 100 (78.1%) maintained it was slow while 2 (1.6%) indicated that they never used the system. The result of the evaluation of the current manual system necessitated the implementation of an online complaint management model for the University. The model was implemented using Hypertext Preprocessor (PHP), AJAX, JavaScript, Cascading Style Sheets (CSS) and Hypertext Markup Language (HTML) and MySQL. The implemented system will positively affect the management of students' complaints if implemented.

Keywords: Complaint Management System, Survey Methodology, Hypertext Markup Language, Hypertext Preprocessor, Cascading Style Sheets

1. INTRODUCTION

The importance of complaints in any organization cannot be overemphasized because the performance of an organization can be determined through complaints and feedbacks made by customers (Ogonu *et al.*, 2019). Complaints help assess the performance of employees and the quality of service rendered. No business can exist without customers. Therefore, every organization has to be very conscious of the quality of service delivered to their customers (Alzaydi *et al*, 2018).

While research has been done on complaint management in institutions such as banks, little research has been done on the importance of complaints in educational institutions (Yoke, 2018). Recent experiences have shown that deficiencies in University complaint management system and their operation can have massive costs in time, money and can cause damage to their individual careers and institutional reputations (Mirzoev and Kane, 2018). Complaints can benefit Universities in several ways by: creating a second chance to provide quality service and satisfaction to staff and students, identifying areas of risks, identifying areas that need improvement, providing opportunities to strengthen student, staff and public support for the University and assisting in planning and allocation of resources (Barbour, 2006). This study is expected to assist Bowen University in evaluating its complaint handling and to also develop an online complaint management system for the University. The existing complaint handling system in Bowen University employs a paper-

based approach of making complaints, this approach of making complaints is slow, time consuming, not computerized and stressful. Therefore, the objective of this study is to investigate the complaint management system in Bowen University through the use of survey methodology on students to elicit information and evaluate them so as to justify the implementation of better model of the current system or otherwise.

Although there are other methods of handling complaints such as building a complaint center in the University and having a hot line for handling complaints, the online complaint management is considered in this study because of its ease and convenience (Paulo*et al*, 2019). An online complaint management system is an organized way of lodging complaints, responding to the complaints, and recording complaints via the internet to improve service rendered (Dany *et al*, 2022). This system will be available for twenty four hours; thus providing a more accessible medium of making complaints, it is also a convenient method of making complaints for students (with the advent of mobile devices).

2. LITERATURE REVIEW

2.1 Complaint

According to the American Heritage dictionary of the English language, complaint is an expression of pain, dissatisfaction, or resentment. Also, complaint may be considered as a customer's attempt to correct a problem encountered during service rendered by a company or to change a treatment perceived as unsatisfactory (Wissem, 2012).

2.2 Related works
2.2.1 E-Knowledge Based Complaint Management

The world is in an electronic age where everything is being computerized (Britannica, 2020). A company with a complaint management system that is electronic has a better chance of making use of the complaints received from customers, not just for the purpose of resolving them but for knowledge management (Adewusi, 2021).
According to Tax and Brown (1998), there are three (3) stages to an e-based complaint procedure which are as follows
   i.   Self-service Portal
          A portal should be designed for the customers where they can make their complaints online instead of coming down to the company. This puts less pressure on the staff as they would not have to be confronted by customers; it also saves time and cost for the customer.
   ii.   Customer Relationship Center
          The complaint received by the employee should be responded to immediately. Also, at this stage, the customer should be informed about the progress of the complaint resolution.
   iii.   Transfer Complaints
          Customer complaints should be transferred to the appropriate unit for resolution after which the complaint is closed. At this stage, the customer should be followed up to know if the resolution is satisfactory.
Although, this work focuses on complaint management system in a University, effective complaint management is very important to any organization (Phabmixay *et al,* 2021). The way an organization handles complaints determines the customer base of the organization (Oru and Madumere, 2022). Relating this to an educational institution, Bowen University to be specific, the way she handles complaints from her students will determine to a large extent, how conducive the environment will be for learning. For instance, if a student is unhappy about power supply or about the fact that he/ she is being bullied by a fellow student, that student is not likely to concentrate adequately on his/her studies and also, he/she is likely to speak negatively about the University to someone else.
Therefore, it is imperative to put in place adequate measures that will enable the University hear from their students, resolve complaints and also check the causes of these complaints to prevent them from recurring (Tremblay *et al*, 2012; Margareth *et al*, 2018). This will create a harmonious and conducive environment for learning.

2.2.2 Complaint Management System for Municipality (CMSM)
According to Patel, J. and Patel, R. (2010), the Complaint Management System designed for municipality provides services to respond to complaints made to the corporation. The system allows the complainant to know their complaint

status, allows complaint to be distributed to various units in the organization and it allows the administrator to view and respond to customer complaints.

CMSM system has some advantages over the paper-based approach of making complaints which includes the following; it is fast, reduces data redundancy, it is automated and it distributes complaints to the various units automatically. Although this system has a great deal of benefits, it is limited in that it allows only complaint registration and checking of complaint status. In order to overcome this limitation, we have come up with a system that is aimed at addressing this challenge. Our work included a chat system that allows complainants to have their own account, and it will allow them to edit their account settings, for example, when a student moves to a new level, the student can update his level to the new one.

3. METHODOLOGY
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3.1. The Use Case Diagram

A Use Case diagram represents software using actors and use cases Zaman *et al* (2020). Actors in a system represent the various users of a system, the use cases represent what functions the actors can perform on the system (Nasution and Harahap, 2022). For example, in the complaint management system, there are three actors; the student, the admin user and the super admin. Some of the use cases include: sign up, complain, view reply, change settings, chat, log in, log out, reply complain, create account, search, view history. Figure 4.1 below depicts the use case diagram for the Online Complaint Management System
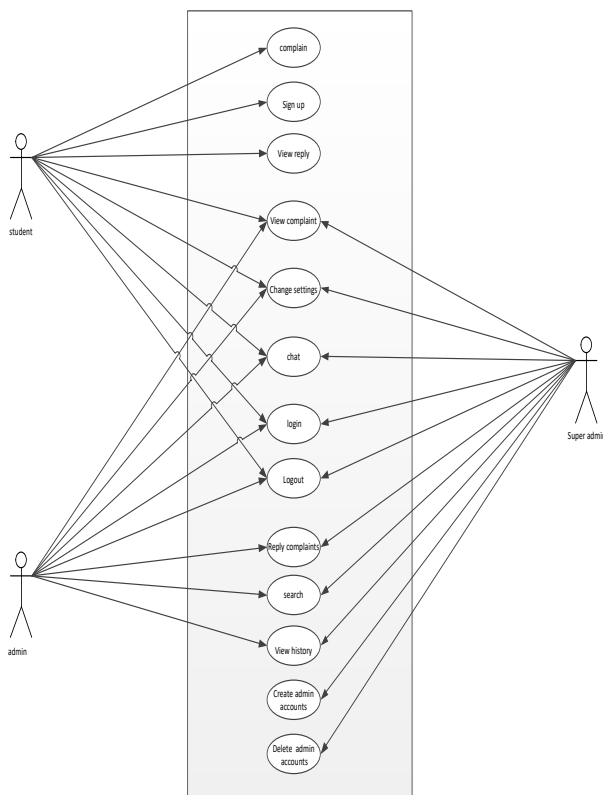

Figure 4.1: The Use Case Diagram for the Online Complaint Management System (OCMS)
Which include the works unit, the student affairs unit and the admin. This work focuses on the student affairs unit.

4. IMPLEMENTATION

The online complaint management system designed for Bowen University has three modules; the student's end, the admin's end and the super admin end. The admin end is designed for three units of the university.

4.1 The Sign-up Page

Figure 4.2 depicts the sign-up page of the students' end of the online complaint management system. On this page, the student is required to provide his name, email address, matric no, level, faculty and department in order to start using the system. Figure 4.3 shows the Complaint page of the OCMS. Figure 4.4: The chat page of the OCMS. Figure 4.5 shows the Admin Login page. Figure 4.6 shows the home and reply page for the admin user of the OCMS. Figure 4.7: shows the Admin chat page. Figure 4.8 shows the page for creating and deleting admin accounts.
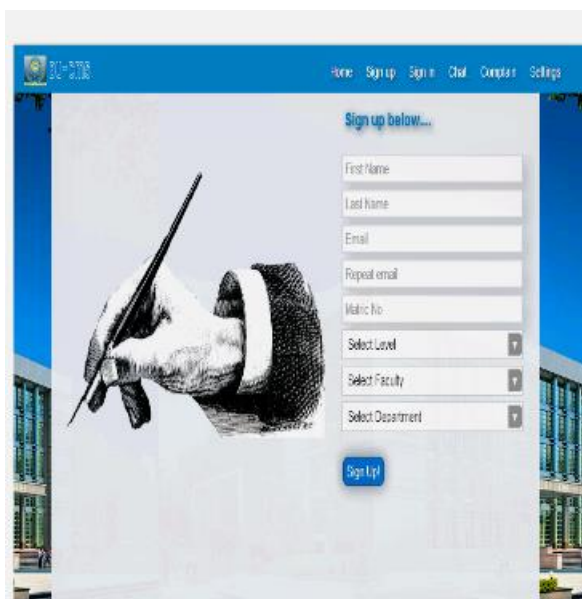

Figure 4.2: The sign-up page of the student module of the Online Complaint Management System

4.2 The Complain Page

The following diagram depicts the complaint page of the student where the student can lodge complaint online by providing the unit of the school to make complaint to which is the student affairs unit and also the complaint.

Figure 4.3: The Complaint page of the OCMS

4.3 The Chat Page

The following image shows the chat page that allows the student communicate synchronously with the student affairs unit.

Figure 4.4: The chat page of the OCMS

4.5 The Admin Login Page

The following image shows the admin login page that allows the admin to login into his account by providing account details which are his username and password.
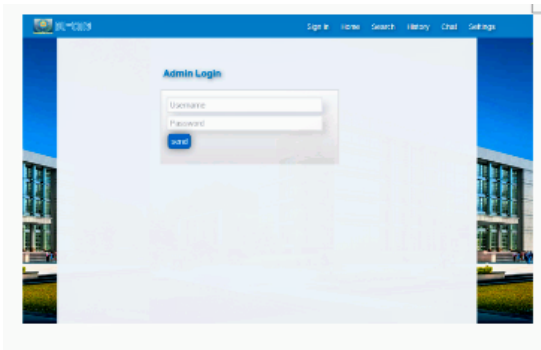

Figure 4.5: The Admin Login page

4.4 The Staff Home and Reply Page

The following image shows the home page of the staff; this page shows the staff of all the complaints made to that unit and provides a reply button to attend to unvisited complaints.
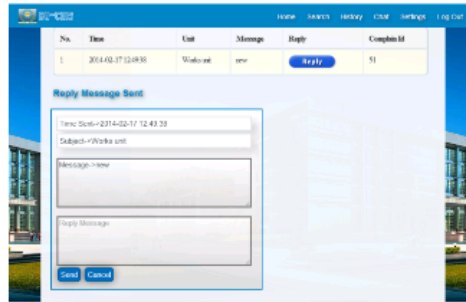
Figure 4.6: The home and reply page for the admin user of the OCMS

4.6 The Admin Chat Page

The admin chat page allows the admin to communicate synchronously with a student that already activated a chat by clicking on the student's name. The following image shows the chat page for the admin user.

Figure 4.7: The Admin chat page

The Super admin performs all the functions of an admin user. The following image shows the page for creating and deleting accounts.
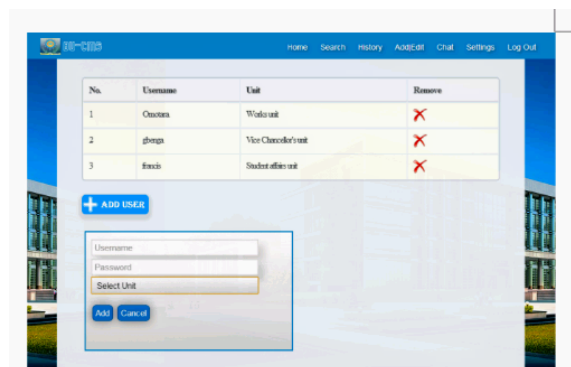

Figure 4.8: The page for creating and deleting admin accounts

5. RESULTS

A survey was carried out on two hundred (200) students from 100 to 400 level in Bowen University. The results are as follows:

Table 5.1 shows the distribution of the respondents and the result for each. 82 (44.8%) of the participants were male, while 101 (55.2%) were female. Additionally, 46 (25.1%) of the participants were 100 level Students, 55 (30.1%) of the participants were 200 level students, 23 (12.6%) were 300 level students, while 59 (32.2%) were 400

Table 5.1: Distribution of Respondents by Demographic characteristics

Sex	Frequency	Percentage
Male	82	44.8
Female	101	55.2
Level		
100	46	25.1
200	55	30.1
300	23	12.6
400	59	32.2
Total	**183**	**100**

Distribution of how complaints were made

Table 5.2 shows that 7 (5.5%) of the male participants indicated that they make complaints in the university by making calls, 9 (7.0%) of them indicated that they make complaints in the university by sending text messages, 27 (21.1%) of them indicated that they make complaints in the university by going to the appropriate unit, while 15 (11.7%) of them indicated that they make complaints by reporting to the porters. Also 11 (8.6%) of the female participants indicated that they make complaints in the university by making calls, 9 (7.0%) of them indicated that they make complaints in the university by sending text messages, 35 (27.3%) of them indicated that they make complaints in the university by going to the appropriate unit, while 15 (11.7%) of them indicated that they make complaints by reporting to the porters.

Distribution of how fast they get complaints with current method by gender

Table 5.3 shows that 7 (5.5%) of the male participants indicated that they get their complaints very fast with the stated method, 9 (7.0%) of the participants indicated that they get their complaints fast with the stated method, 42 (32.8%) of participants indicated that they get their complaints slow with the stated method, while none of the participants never tried to get their complaints with the stated method. Also, 1 (0.8%) of the female participant indicated that they get their complaints very fast with the stated method, 9 (7.0%) of them participants indicated that they get their complaints fast with the stated method, 58 (45.3%) of participants indicated that they get their complaints slow with the stated method, while 2 (1.6%) of the participants never tried to get their complaints with the stated method.

Table 5.2 How Complaints were made

How do you make complaints in the University?	Gender		Total
	Male	Female	
By making calls	7 (5.5%)	11 (8.6%)	18 (14.1%)
By sending text messages	9 (7.0%)	9 (7.0%)	18 (14.1%)
By going to the appropriate unit	27 (21.1%)	35 (27.3%)	62 (48.4%)
Reporting to the porters	15 (11.7%)	15 (11.7%)	30 (23.4%)
Total	58 (45.3%)	70 (54.7%)	128 (100.0%)

Table 5.3: How fast were complaints answered?

How fast do you get your complaints with the method stated above?	Gender		Total
	Male	Female	
Very fast	7 (5.5%)	1 (0.8%)	8 (6.3%)
Fast	9 (7.0%)	9 (7.0%)	18 (14.1%)
Slow	42 (32.8%)	58 (45.3%)	100 (78.1%)
Never tried	0 (0.0%)	2 (1.6%)	2 (1.6%)
Total	58 (45.3%)	70 (54.7%)	128 (100.0%)

Table 5.3 shows that the participants were fairly distributed across all levels of study.

Table 5.4 shows that 74 (40.4%) of the male participants indicated that they would like online complaint management system implemented by Bowen University, while 8 (4.4%) of the participants indicated that they would not like online complaint management system implemented by Bowen University. Also, 87 (47.5%) of the female participants indicated that they would like online complaint management system implemented by Bowen University, while 14 (7.7%) of the participants indicated that they would not like online complaint management system implemented by Bowen University.

Table 5.4   Distribution of whether if online complaint management system is implemented by Bowen University they would like it by gender

If an online complaint management system is implemented by Bowen University, would you like it?	Gender		
	Male	Female	Total
Yes	74	87	161
	(40.4%)	(47.5%)	(88.0%)
No	8	14	22
	(4.4%)	(7.7%)	(12.0%)
Total	82	101	183
	(44.8%)	(55.2%)	(100.0%)

6. DISCUSSION

The results of the questionnaire revealed that 18 percent of the student's lodge complaints by making calls, 18 percent by sending text messages, 62 percent by going to the appropriate unit and 30 percent by reporting to the porters. This implies that a majority of the participants make complaints by going to the appropriate unit.

In making complaints, 6.3 percent indicated that they found their method of making complaints very fast, 14.1 percent indicated that they found their method of making complaints fast, 78.1 percent indicated that they found their method slow and 2 percent said they never tried making complaints.

Also, 88 percent of the participants indicated that they would like if an online complaint management system is implemented in Bowen University while 12 percent indicated that would not like if an online Complaint management system implemented.

7. CONCLUSION

The evaluation of the manual system justified the importance of another means of making complains. This was highlighted by about 88 percent of the participants that indicated the need for an online complaint management system for Bowen University From the analysis; it is recommended that similar educational institution should implement this model.

8. REFERENCES

Adewusi, A. (2021). Effect of customer feedback on marketing effectiveness in a manufacturing organisation. *NOUN-JOMAID* 6. 767-776.

Afify, E. and Kadry, M. (2019). Electronic-Customer Complaint Management System (E-CCMS) – a Generic Approach. *Int. J. Advanced Networking and Applications*. Volume 11, Issue 01. Pages 4125-4141. 10.35444/IJANA.2019.11011. ISSN: 0975-0290

Alzaydi, Z.M., Al-Hajla, A., Nguyen, B. and Jayawardhena, C. (2018), "A review of service quality and service delivery: Towards a customer co-production and customer-integration approach", *Business Process Management Journal*, Vol. 24 No. 1, pp. 295-328. https://doi.org/10.1108/BPMJ-09-2016-0185.

Barbour B.(2006) Complaint Handling at Universities: Best Practice Guidelines. Retrieved from http://www.ombo.nsw.gov.au/_data/_assets/-pdf-file/011/4205/GL_Complaint-handling-universities.pdf.

Britannica, T. Editors of Encyclopaedia (2020). *Digital Computer*. *Encyclopedia Britannica*. https://www.britannica.com/technology/digital-computer. Assessed on 16th May, 2022.

Dany V., Magali J., Olivier M., Thierry M. andNélida M. (2022) The impact of convenience in a click and collect retail setting: A consumer-based approach,*International Journal of Production Economics*,Volume 248,108491,ISSN 0925-5273,https://doi.org/10.1016/j.ijpe.2022.108491.

Margareth A. Mapunda and Nasibu R. Mramba (2018), Paper Title: Exploring Students' Complaints Management in Higher Learning Institutions in Tanzania – Lessons from the College of Business Education. *Business Education Journal (BEJ)*, Volume II, Issue I, 7. http://www.cbe.ac.tz/bej.

Mirzoev, T., & Kane, S. (2018). Key strategies to improve systems for managing patient complaints within health facilities - what can we learn from the existing literature? *Global health action*, *11*(1), 1458938. https://doi.org/10.1080/16549716.2018.1458938.

Mjahed, S. and Triti, A. (2002). Towards E-based complaint management. Retrieved October 16, 2013 fromwww.researchgate.net/publication/220610540_Toward_Ebased_complaint_Management.

Nasution, R. and Harahap A. M. (2022). Web-Based Inventory Data Processing Information System at The Regional Development Planning Agency (Bappeda) North Sumatra Province. *Journal of Information System and Technology Research*. Volume 1, Issue 1. https://journal.aira.or.id/index.php/jistr/article/download/95/41

Ogonu, G.,Nwokah, N. and Acee-Eke, B. (2019) Distributive Justice and Customer Post-Complaint Behaviour of Fast-Food Industry in Rivers State, Nigeria. *Journal of Service Science and Management*, 12, 277-292. doi: 10.4236/jssm.2019.123019.

Oru, G. U. and Madumere, H. I. (2022). Influence of Customer Complaint Management on Marketing Performance of Banks.*ARRUS Journal of Social Sciences and Humanities*, Vol. 2, No. 2 (2022) https://doi.org/10.35877/soshum736. ISSN: 2776-7930 (Print) / 2807-3010 (Online).

Patel, J. and Patel, R. (2010) Complaint Management System. Retrieved September 21, 2013 from http://Project4free.blogspot.com/complaintmanagementsystem-120219111048-phpapp01.ppt.

Paulo R., Tiago O., and Almira F. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping,*Heliyon*. Volume 5, Issue 10,e02690,ISSN 2405-8440,https://doi.org/10.1016/j.heliyon.2019.e02690.

Phabmixay, C. S., Rodríguez-Escudero, A. I. and Rodríguez-Pinto, J. (2021) Benefits from the standardisation of the complaint management system.*Total Quality Management & Business Excellence*, 32:7-8, 737-757, DOI: 10.1080/14783363.2019.1633295

Ricci, L., Lanfranchi, J.-B., Lemetayer, F., Rotonda, C., Guillemin, F., Coste, J., & Spitz, E. (2019). Qualitative Methods Used to Generate Questionnaire Items: A Systematic Review. *Qualitative Health Research*, *29*(1), 149–156. https://doi.org/10.1177/1049732318783186.

Tax, S., and Brown W. (1998). Recovering and learning from service failure. *Sloan Management Review*, *40*(1): pp.75-89.

Tremblay, K., Lalancette, D.,Roseveare, D. (2012), Assessment of Higher Education Learning Outcomes, *OECD Publishing*, Paris. https://www.oecd.org/education/skills-beyond-school/AHELOFSReportVolume1.pdf

Yoke L. B. (2018) Interrelationship between Perceived Instructor Power, Student Dissatisfaction, and Complaint Behaviors in the Context of Higher Education. *International Education Studies*. Vol. 11, No. 7; ISSN 1913-9020 E-ISSN 1913-9039

Zaman Qu, Nadeem A, Sindhu MA (2020) Formalizing the use case model: A model-based approach. *PLOS ONE* 15(4): e0231534. https://doi.org/10.1371/journal.pone.0231534