Designing Online Help Desk System for Colleges

Sarjiyus, O.

Department of Computer Science, Adamawa State University, Mubi Nigeria

ABSTRACT

Owing to the difficulties that are faced by staff in transferring information/data, unwilling attitude of some Concordia College staff when checking their students' information, fragile nature of students' information, and difficulties parent encountered when checking their wards information, coupled with time wasted in manual processing of students' information, this project aimed at developing an Online Help Desk system to checkmate the difficulties parent and staff encounter when trying to check for information about Concordia College and its students/wards. The system development methodology adopted for this research was Structured System Analysis and Design Methodology. Flowchart, use-case diagram, database design and entity-relationship model were used to define the system design. PHP, HTML, CSS, Bootstrap Frontend Framework, jQuery and MySQL were the technologies used in implementation of the new system. The new developed system is achieving the aim of this study. It was recommended that Concordia College, Yola should increase the awareness level of the existence of this system, other schools should also adopt this type of system to enable easy information dissemination to parents/guardians of prospective students, and that future researchers in this field should consider developing mobile versions of this kind of system, to facilitate accessibility and use by various stakeholders.

Keywords : Help, Desk, Parents, Processing, Online

I. INTRODUCTION

With the onset of computer age, ease of use and user friendliness is of vital importance to successful system design. Online help systems can bridge the gap between the user's need for simplicity and the software's complexity, by providing relevant information Within the very specific context of a user's lack of adeptness at a particular task or lack of familiarity with a particular concept [1]. Ironically, help system, in its genesis, carried with it some degree of essential worthlessness [2]. In one extreme, in the past, some interface designers advocated that a perfectly designed interface would render the help system unnecessary [3]. However, human computer interfaces, from the user-centered perspective, remain relatively awful nowadays. It is noticeable that even the most user-friendly software is not always easy to use [4]. Therefore, we hold that online help systems play a crucial role in the utilization of computing resources.

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The importance of online help desk cannot be ignored in Today's world. Online help desk

information system has made public enquiries or making a suggestion of general public easier. This type of retrievals significantly varies in different factors like immediate retrieval and attention of officials and users with one or more entities. Automated help desk systems should retrieve exactly the information required to assist a user as quickly and as easily as possible either for a user who knows little about the system or for an advanced user who requires more specific information [5]. According to [6], online help desk systems should retrieve exactly the information required to assist a user as quickly and as easily as possible either for a lay user who knows little about the domain or for an advanced user who requires more specialist information. The focus of this study is to develop a help desk information retrieval mechanism suitable for a wide range of users and to provide a way of easily maintaining the system.

Therefore, online help systems play a crucial role in the utilization of computing resources.

II. THEORETICAL FRAMEWORK

Online Help Systems are systems designed to provide user assistance embedded in a larger program or computer system [7]. Although designers frequently integrate help programs with the application, help systems might also be separate and run concurrently with the system. This definition was of narrow scope, in that it was oriented by computer programs, for example application-oriented. With the pervasiveness of a diverse and heterogeneous range of software and hardware systems, an online help system serves as a gateway to all kinds of computing resources. For example, the online help system at University of Maryland, Baltimore County (UMBC) provides services on a variety of platforms including Macintosh, Windows and UNIX, for heterogeneous software or applications such as Oracle, SAS, Mathematical, MATLAB, and the like. In this sense, a broad view of online help system should consider it

to be a middle tier between computing resources and users. From organizational perspective, specifically in an educational institution, an online help system is a portal to users, integrating all available computing knowledge or skills for users. [8] discussed the evolution of online help: from book-oriented, to exploratory, then constructive online help systems. Book oriented online help mirrored paper-based documentation, which featured static and linear structure. Although this traditional organization of contents was familiar to users, it was not quite competent for satisfying the complicated information needs of particular users in specific contexts for idiosyncratic tasks. Thus, came up hypertext-based online help, either exploratory or constructive. Exploratory online help is characterized by providing multiple paths to navigate a document, hence it grants a higher level of interactivity. Its weaknesses were unfamiliarity to users and difficulty to read through. Constructive online help allows customization by users, feedback to developers, and capability to re-conceptualize tasks [8]. This online help conception evolved along the dimension of user-document interactivity. With the implementation of heterogeneous software and hardware, however, online help systems should be considered more from organizational point of view than from application-oriented perspective before. Some problems of online help systems stem from awkward integration among different applications, instead of failing to solve certain system questions.

[9], proposed four dimensions wherein online help systems could be categorized:

(i) Access method - How users input help requests.

(ii) Data structure - How the help information are organized.

(iii) Software architecture - How users and the help systems interact.

(iv) Contextual knowledge - To what extent is the help information relevant to the environment and the tasks of a specific user.

[10], argued that one shortcoming of this categorization was that these dimensions only take into consideration software related aspects, omitting user interface related factors. To address this deficiency, they brought up a new taxonomy of online help. These methods of classification are all limited in application viewpoint, either from system itself or human computer interactivity. It has been argued that organizational or human behavioral factors are also, at least of the same importance, in order to grasp what our users really want from online help systems. In this sense, concern is shifted to the field study process, for the sake of letting contextual data speak out by itself.

[11], investigated organizational impacts on online help by examining two help approaches: Document Oriented and Computer-Mediated Communication (CMC). In document-oriented approach, they reviewed online manual, hypertext system and self-explanatory object. As for CMC, their work discussed electronic mail to experts, group forum and searchable archives. The contributions of this research were highlighting the organizational issues inherent in online help systems, and examining a range of online help methods, thus granting a possibility of combining these help approaches. This work also emphasizes the reliability issues involved in CMC help systems, which relied on a decentralized negotiated problem solving process. [11], carried out an empirical study to assess the conception of active help system. Based on their experimental results, this study suggested that most opportunities provided by active help systems could not necessarily improve system performance. For instance, it was not such exciting to replace menu bar with keyboard shortcuts to navigate. [12], worked on correlation between help texts and help mechanisms. According to the controlled experiments conducted, the importance of help mechanisms was surprisingly surpassed by that of help texts. [2], tried to answer this question: Who exactly is trying to help users? Their study spoke of the ethos of several popular online help systems, such as Microsoft Office Assistant. This research analyzes the functions of help systems from reference resource, user guide, to user perception. [13], demonstrated how to construct a knowledge-based online help system. The knowledge base underlying was extracted and maintained by a task model and a user model. This work also pointed out that help system is an indispensable component of human computer communication [13]. Although these empirical studies advanced theoretical evolution of online help systems, little work grounded online help systems into specific domains and more focused on human behavior issues on online help systems. Thus, it is believed that it bestows us a research niche to examine online help systems in a specific domain; Educational institution, and to resort to qualitative research method: field study. Limitations of current researches and contributions of this research investigated online help systems from various perspectives, most of them focused on systematic viewpoints ranging from help content organization and navigation, through help system architecture and mechanism, to context-sensitivity of online help. These studies failed to emphasize human behavioral and organizational impacts on online help systems use and design. Most of other researches addressed help systems problems through examining school help systems or application help systems. This method limited the exploration into a narrow scope, for instance Microsoft Office Assistant. There are help systems that support a diversity of applications. A good example is campus-wide online help system. The latter needs more attention to human factors owing to the intense human-system interactions. In addition, very few researches on help systems make use of qualitative method, such as ethnographic study or field study. Also, not many studies looked at help systems in a particular domain. Therefore, this research aims to contribute to school-wide help systems area ensuring that information about students and school are:

(i) Contextualizing online help systems research in a school domain.

(ii) Investigating diverse-purpose help systems: school-wide online help systems, instead of application-oriented help.

(iii) Designing an online help system that explores human behavioral and school organizational issues of online help systems.

III. ONLINE HELP DESK IN SCHOOLS

Online Help Desk as characterized by the separation of teachers, learners parents or Guidance that distinguishes it from face-to-face interaction, the influence of an online help desk which distinguishes it from manual desk help and private help, the use of a computer network to present or distribute online help content such as directions, the provision of two –way communication via a computer network so that students may benefit from each other, teachers non-academics staff and parent or guidance. Some prefer to distinguish the variance by describing online help as "wholly" online learning [14], whereas others simply reference the technology medium or context with which it is used [15]. Others display direct relationships between previously described modes and online help desk by stating that one uses the technology used in the other [17], [18]. Online help is described by most authors as access to information experiences via the use of some technology [19];[20];[21]. Both [19] and [20], identify online help as a more recent version of distance learning which improves access to educational opportunities for learners, described as both non-traditional and disenfranchised. Other authors discuss not only the accessibility of online help but also its connectivity, flexibility and ability to promote varied interactions [14]; [20]. [20], in particular not only allude to online help relationship with information and traditional delivery systems but then, like [19], makes a clear statement that online help is a newer version or, and

improved version of getting student and/or school information.

IV. METHODS OF DATA COLLECTION

The purpose of data collection is to gather sufficient, relevant, and appropriate data so that a set of stable requirements can be produced. Even if a set of initial requirements exists, data gathering will be required to expand, clarify, and confirm those initial requirements. Data gathering needs to cover a wide spectrum of issues because the different kinds of requirements needed to be established are quite varied. Techniques used include interview and direct observation of the existing system for the purpose of achieving the objectives of this research. Other methods used to elicit data for this research includes; journals, articles and conference proceedings.

V. SYSTEM DESIGN

The purpose of system design is to create a physical model that will satisfy all documented requirements for the system. At this stage, the user interface is designed and all necessary outputs, inputs, and processes identified.

The major factors taken into consideration in the design of the new system is the issue of storing and ordering for data/information in the database. The new system will have functionalities that require data to be ordered
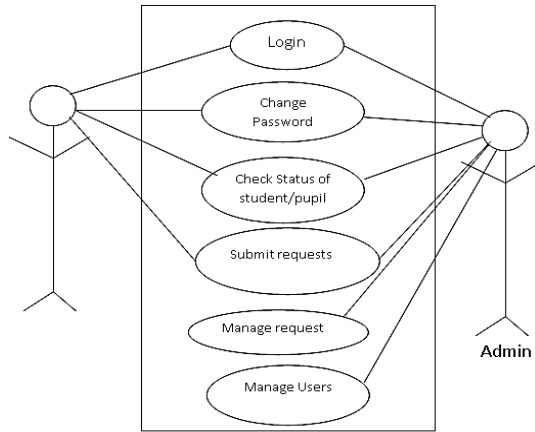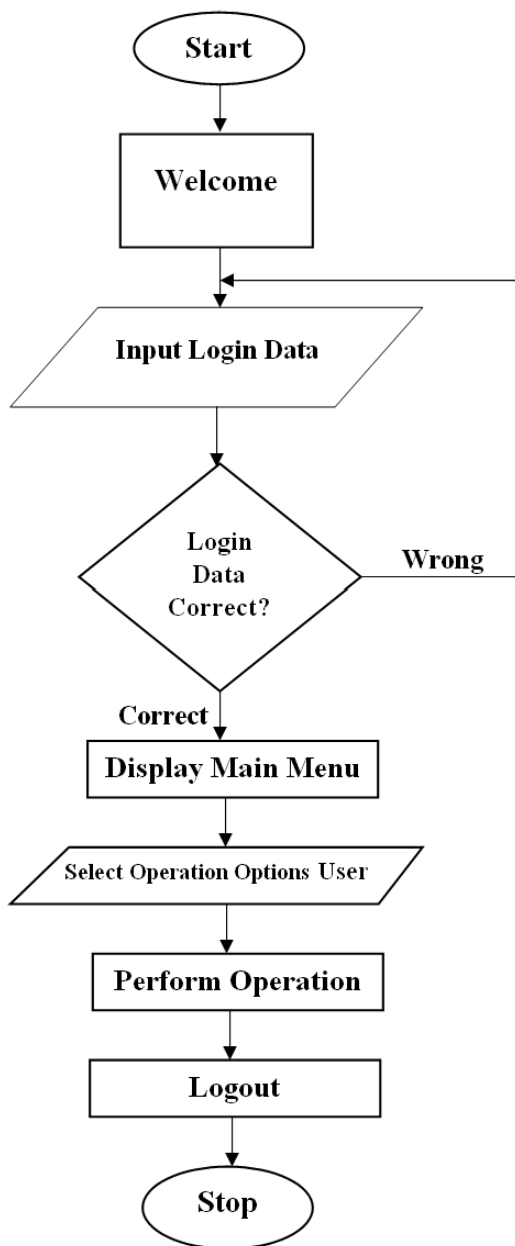
Figure 1: UML Use-Case Diagram for the system

Figure 2: Program Flowchart for the School help desk system

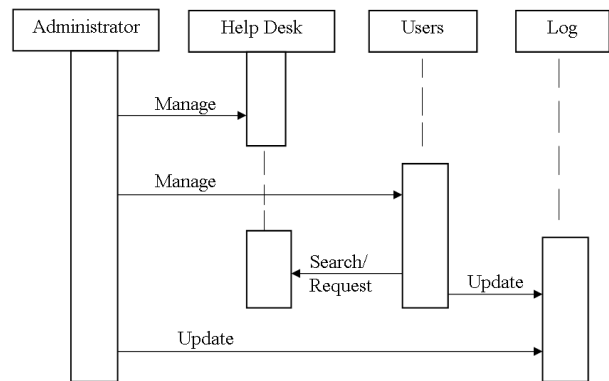**Figure 3:** Entity-Relationship Diagram

Figure 4 : System Sequence Diagram

System Requirements

Software Requirements

1. HTML5
2. CSS3
3. PHP
4. jQuery
5. Bootstrap 3
6. MySQL
7. Web Browser
8. Local Server

Hardware Requirements

1. Devices capable of sending/receiving data over the internet
2. 1 GB RAM
3. 1.20 GHz Processor
4. Stable power source

VI. IMPLEMENTATION
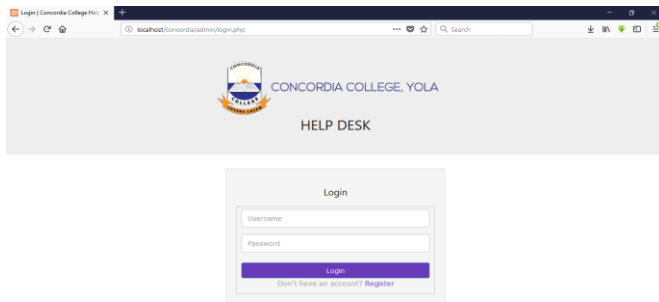
Figure 5: User Login Page

Registration Module

This module is allows prospective users to register as bonafide users of the system.
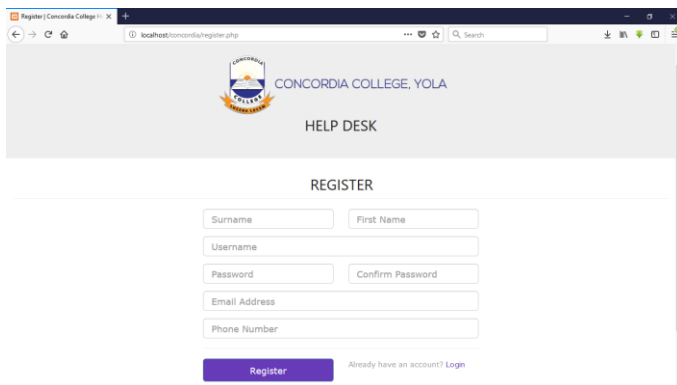
Figure6: Register Page

Homepage

This first page the user sees after logging in to the system. It contains a dynamic search bar created with PHP and Ajax, as well as links to other sections of the system.
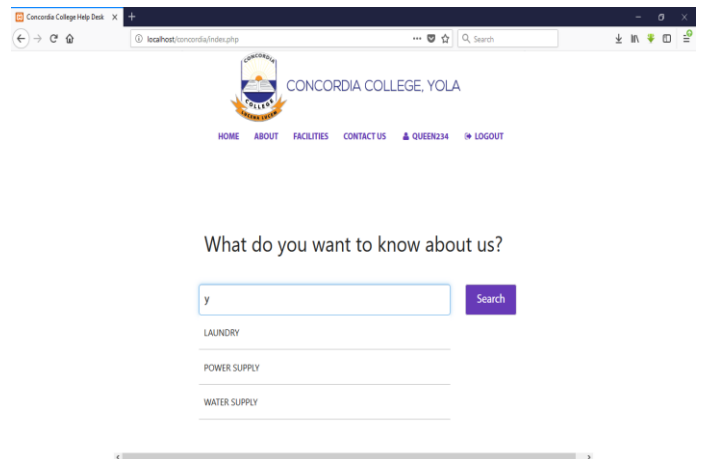

Figure 7: User Home Page

Search Results

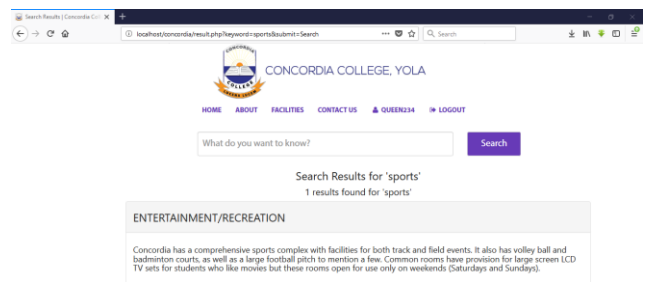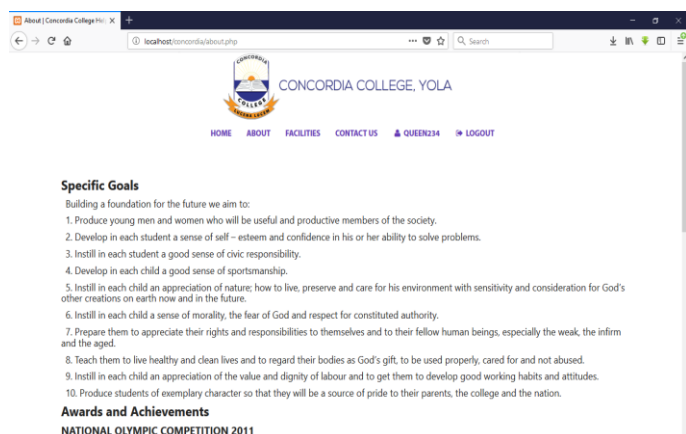This page displays the search results based on the query entered by the user.

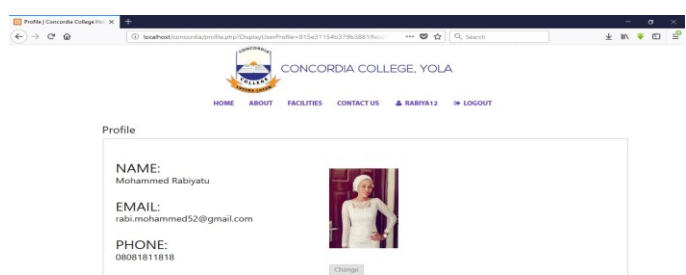**Figure 8:** Search Results Display Page

About Page

This page contains description of the goals of Concordia College, Yola, as well as prominent events competition attended as well as awards won by the institution.

Figure 9: About Page

Profile Module

This module displays the profile of the user, as well as option for updating the users profile picture.

Figure 10 : User Profile Module

VII. CONCLUSION

The importance of online help desk cannot be overemphasized in today's world. Online help systems are bridging the gap between the user's need for simplicity and the software's complexity by providing relevant information. Online help desk information system has made public enquiries or making a suggestion for the general public easier. This type of retrievals significantly varies in different factors like immediate retrieval and attention of officials and users with one or more entities. The implementation of the Concordia College Online Help Desk System has proved to be a link between Concordia College, Yola and those seeking information about it.

VIII. REFERENCES

[1]. Patrick, A. and McGurgan, A. (2008), "One proven methodology for designing robust online help systems", Proceedings of 11th International Conference on Systems Documentation , Waterloo, pp. 223-32.

[2]. Randall, N. and Pedersen, I. (1998), "Who exactly is trying to help us? The ethos of help systems in popular computer applications", Proceedings of the 16th Annual International Conference on Computer Documentation , Quebec, pp. 63-9.

[3]. Carroll, J., Mack, R. and Kellogg, W. (2009), "Interface metaphors and user interface design", in Helander, M. (Ed.), Handbook of Human-Computer Interaction, Elsevier Science Publishers, North Holland, pp. 67-85.

[4]. Covi, L.M. and Ackerman, M.S. (2011), "Such easy-to-use systems! How organizations shape the design and use of online help systems" Proceedings of Conference on Organizational Computing Systems , Milpitas, CA, pp. 280-8.

[5]. Kumar, R., Prakash, A., and Chaudry, S. (2016). System Analysis and Designon Online Help Desk System. Asia pacific institute of information technology.

[6]. Kang, B. H., Yoshida, K., Motoda, H. and Compton, P (2015). Help Desk System with Intelligent Interface. The Institute of Scientific and Industrial Research, Osaka University.

[7]. Kearsley, G. (2013). Online Help Systems: Design and Implementation , Ablex Publications Corp., Norwood, NJ.

[8]. Selfe, D. and McGavin, D. (2012), "Online help: exploring static information or constructing personal and collaborative solutions using hypertext", Proceedings of SIGDOC'12 Conference, Ontario, pp. 97-101.

[9]. Sondheimer,N.K. and Relles,N. (2013), "Human factors and user assistance in interactive computing systems: an introduction", IEEE

Transactions on Systems, Man and Cybernetics, Vol. 12 No. 2, pp. 102-6.

[10]. Bergman, H. and Keene-Moore, J. (2010), "The birth of a help system", Proceedings of the 2010 ACM Annual Conference on the Range of Computing: Mid-1980s Perspective, Denver, CO, pp. 289-95.

[11]. Carey, T., Nonnecke, B. and Mitterer, J. (2012), "Prospects for active help in online documentation", Proceedings of the 10th Annual International Conference on Systems Documentation, Ontario, pp. 289-96.

[12]. Borenstein, N. (2010), "Help texts vs help mechanisms: a new mandate for documentation writers", Proceedings of the 4th Annual International Conference on Systems Documentation , San Francisco, CA, pp. 78-83.

[13]. Fischer, G., Lemke, A. and Schwab, T. (2013), "Knowledge-based help systems", Proceedings of the CHI'13 Conference, San Francisco, CA, pp. 161-7.

[14]. Oblinger, D. G. and Oblinger, J. L. (2005). Educating the Net Generation. EDUCAUSE Publishers

[15]. Lowenthal, P. R., Wilson, B. and Parish, P. (2009). Context Matters: A Description and Typology of the Online Learning Landscape. Association of Educational Communications and Technology, Washington DC.

[16]. Volery, T. and Lord, D. (2010). Critical Success Factors in Online Education. International Journal of Educational Management 14(5) 216-223 2010.

[17]. Rekkeddal, T., Qvist-Eriksen, S. Keegan, D., Suilleabhain, G. O., Coughlan, R, Fritsch, H. (2013). Internet Based eLearning Pedagogy and Support Systems. NKI Distance Education, Norway.

[18]. Benson, A. (2011).Using Online Learning to meet Workforce Demand: A Case Study of Stakeholders Influence. Quarterly Review of Distance Education. 3 (4), 443-452.

[19]. Conrad, D. (2012). Deep in the Heart of Learners: Insights into the nature of ONLINE community. Journal of Distance Education, 17(1), 1-19

[20]. Carliner, S. (2012). Human Performance Technology and HRD. New Horizons of Adult Education and Human Resource Development, Volume 26 Issue 1.

[21]. Hiltz, S. R, and Turoff, M. (2015). Electronic Publishing and People. Computer Compacts, Volume 1, Issue 4, August – September, 2015, pp 196-201.

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