

**REQUIREMENT MODEL FOR CIAC SERVICES
FEEDBACK SYSTEM
(CSFS)**

EISSA HAMOOD ABDULWAHID

**Universiti Utara Malaysia
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REQUIREMENT MODEL FOR CIAC SERVICES FEEDBACK SYSTEM (CSFS)

A project submitted to Dean of the Awang Had Salleh graduate School of
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By

EISSA HAMOOD ABDULWAHID

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Universiti Utara Malaysia

06010 UUM Sintok

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ABSTRACT

The universities may have an edge on the candidate's competition, each strives to be a world recognized educational institution therefore Universiti Utara Malaysia is striving to keep hold of its global vision through the Centre for International Affairs & Cooperation (CIAC) department which is in charge of this mission. Services provided by the CIAC such as visa, accommodation and transportation are very important for the improvement of the academic and administrative quality and excellence in the education in Universiti Utara Malaysia. A requirement model for CIAC services feedback system based on the perspective of the students is developed to provide the CIAC's decision-makers a wealth of valuable information about the response levels of the students regarding the critical services provided by the university. This requirements were gathered and developed in order to come out with a system that can perform survey easily, cost-effectively, time shortly with reports in the form of charts, graphs without needs of using data analysis tools. The collected requirements are verified and validated using a prototype to confirm that it fulfills the client needs and specifications. Rational Unified Process (RUP) methodology was adopted in order to fulfill the objectives.

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LIST OF ABBREVIATIONS

CIAC: The Centre for International Affairs & Cooperation

CSFS: CIAC Services Feedback System

CHAPTER ONE

1.1 INTRODUCTION

At present, universities' leaderships is seeking a way to get an in-depth understanding for students' activities, desires, needs, and all students' interests that can provide the university employees with student satisfaction information which help to make the work in the university more effective and more efficient (Dongsheng & Wenjing, 2009). A feedback system is one of the effective ways used widely in order to obtain data or information relating to students interests (Petruzzellis, D'uggento & Romanazzi, 2006). An online survey system is becoming a great replacement to traditional paper and mail-based surveys to collect data and information (Singh et al., 2009), and they are used to compensate for serious inherited disadvantage of traditional formats. Among the reasons are, web provides opportunity to compensate for the deficiency of slow distribution, return time and other disadvantages of traditional format (Pargas et al., 2003). It is obviously observable that most people or organizations manage their survey using traditional method by distributing their survey through the mail or by telephoning, and some may afford to distribute by hand (Ariffin & Norshuhada, 2008; Zulikha & Ariffin, 2005; Tronstad, et al., 2009). Currently, where digital is the theme, this is not a timely solution for gathering information because it does not have fast circular returning and responding from the respondents. Other issues such as cost, time and effectiveness are also within considerations. Therefore, a feedback model based on survey management system was required by the Centre for International Affairs & Cooperation (CIAC) in Universiti Utara Malaysia to be the solution for these issues.

1.2 PROBLEM STATEMENT

A major factor in the ability of UUM to keep hold of its global vision is the degree of satisfaction perceived by students. The evaluation of the satisfaction of UUM

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only

REFERENCES

- Arambewela, R. & Hall, J., (2009). An empirical model of international student satisfaction, *Asia Pacific Journal of Marketing and Logistics*, 21(4), 555-569
- Ariffin A.M. & Norshuhada, S. (2008). Usable but not entertaining eLearning materials. In *Proceedings of World Conference on e-Learning in Corporate, Government, Healthcare, and Higher Education (e-Learn)*, USA. AACE
- Catherine C., Dimitrios, B., & Mike, P. (2001). Enhancing SMTEs' business performance through the Internet and e-learning platforms The Centre for eTourism Research(CeTR), School of Management, University of Surrey, Guildford, UK
- Carey, T., Mao, J., Smith, P., & Vredenburg, K. (2002). A survey of user-centered design practices. In *Proceedings of the 2002 SIGCHI Conference on Human Factors in Computing Systems*. New York: ACM Press. 471 – 478
- Couper M., Traugott M.W & Lamias M.J. (2001). Web Survey Design and Administration [electronic version]," *Public Opinion Quarterly*, vol. 65, pp. 230-253.
- Couper, M.P. (2000). Web-based surveys: A Review of Issues and Approaches. *Public Opinion Quarterly*.64, 464-494
- Drucker, P. (1997), Still the youngest mind, *Forbes*, 10 March.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* 13(3). 3 19-339.
- Donaldson, B. & Runciman, F. (1995), "Service quality in further education: an insight into management perceptions of service quality and those of the actual service provider", *Journal of Marketing Management*, Vol. 11, pp. 243-56.
- Dillman, D.A. & Bowker, D.K. (2001). The Web Questionnaire Challenge to Survey Methodologists, Retrieved on 3rd March 2010 from http://survey.sesrc.wsu.edu/dillman/zuma_paper_dillman_bowker.pdf,
- Deitel, H. M. & Deitel, P. J. (1999). *Java How to Program*, third edition, Prentice Hall.
- Dillman D. & Bowker D. (2001). *The Web Questionnaire Challenge to Survey Methodologists*.

Dongsheng Z. & Wenjing J., (2009). Design and Implementation of University Educational Decision Support System on the Students Satisfaction Survey. International Forum on Computer Science-Technology and Applications. Empirical Software Engineering, 2003. ISESE 2003. Proceedings.

Ecevas (2012). e-course evaluation , available on <http://ecevas.uum.edu.my/>,retrived on 5/5/2012

Elmasri, Ramez, Navathe & Shamkant B. (2000). Fundamentals of Database Systems, third edition, Addison-Wesley.

Fricker, R.D. & Schonlau, M. (2002) Advantages and Disadvantages of Internet Research Surveys: Evidence from the Literature. Field Methods, 14(4). 347-367

Forsman G. & Varedian M. (2002). Mail and Web Surveys: A Cost and Response Rate Comparison in a Study of Students Housing Conditions, presented at ICIS 2002 The International Conference on Improving Surveys, University of Copenhagen - Denmark.

Gustafson, D. A. (2002). Theory and problems of software engineering, McGraw-Hill Companies Inc

Ghezzi,Carlo, Jazayeri, Mehdi, Mandrioli & Dino. (2002). Fundamentals of Software Engineering, second edition, Prentice Hall.

Galín, M. (1998). Collecting data through electronic means: A new chapter in the evolution of survey methodology? In Proceedings of the American Evaluation Association Annual Conference. Chicago

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., & Tatham, R.L. (2006). Multivariate Data Analysis 6t Edition. Pearson Education International: USA

Information Technology Services. (2008). Online Surveys. Retrieved on 6 April 2012 from <http://www.utexas.edu/learn/surveys/disadvantages.html>.

Kendall, K. E. (2008). Systems analysis and design (7th ed. ed.). Upper Saddle River: Pearson/Prentice Hall.

King, N. (2005). WebSurveyor. Retrieved 25-09-2011, 2011, from <http://www.pcmag.com/article2/0,2817,1753489,00.asp#fbid=yv5UkeHwjN->

Kurtz, T. (2004). Software assurance of Web-base applications (SAWbA). Research plan approved for NASA Glenn research center.

Kotler, P. & Fox, K.F. (1995), Strategic Marketing for Educational Institutions, Prentice-Hall, Englewood Cliffs, NJ.

LeBlanc, G. & Nha, N. (1997), "Searching for excellence in business education: an exploratory study of customer impressions of service quality", *The International Journal of Educational Management*, Vol. 11 No. 2, pp. 72-80.

Leedy, P. & Ormrod, J. (2001). *Practical research: Planning and design*. Upper Saddle River, NJ: Prentice-Hall.

Macer, T. (2009). *Software reviews from meaning Key Survey reviewed*. Retrieved 09-26-2011, 2011, from <http://www.meaning.uk.com/software-reviews/2009-reviews/key-survey/>

Mackiewicz, R. (2006). *The benefits of standardized web services based on the IEC 6170 Generic interface definition for electric utility control center application integration*.

Murach, J., & Steelman, A. (2004). *Murach's Java Servlets and JSP (second edition ed.)*. States of America: Mike Murach & Associates, Inc.

Musterman, J. (2007). *Market analysis of SPSS*. Retrieved 22-09-2011, 2011, from <http://www.helium.com/items/703271-market-analysis-of-spss>

Naidoo, V. (2006), "International education, an tertiary level update", *Journal of Research in International Education*, Vol. 5 No. 3, pp. 323-45.

Pargas, R. P., Witte, J. C., Brand, L., Hochrine, C., & Staton, M. (2003, 28-30 April 2003). *OnQ: an authoring tool for dynamic online surveys*. Paper presented at the *Information Technology: Coding and Computing [Computers and Communications]*, 2003. *Proceedings. ITCC 2003. International Conference on Information Technology: Coding and Computing [Computers and Communications]*, 2003. *Proceedings. ITCC 2003*.

Punter, T., Ciolkowski, M., Freimut, B., & John, I. (2003). *Conducting on-line surveys in software engineering*. Paper presented at the *Empirical Software Engineering, 2003. ISESE 2003. Proceedings. 2003 International Symposium on*

PETRUZZELLIS, L.; D'UGGENTO, A. M.; ROMANAZZI, S. (2006) *Student satisfaction and quality of service in Italian universities. Managing Service Quality*, Bingley, v. 16, n. 4, p. 349-364.

Pressman & Roger S. (2001). *Software Engineering, fifth edition*, McGraw-Hill Higher Education.

Roztock, N., & Lahri, N. A. (2003). *Is the applicability of Web-based surveys for academic research limited to the field of information technology?* Paper presented at the *System Sciences, 2003. Proceedings of the 36th Annual Hawaii International Conference on System Sciences, 2003. Proceedings of the 36th Annual Hawaii* .

Ralph F. Grove. (2009). Web based application Development, Jones & Bartlett Learning, 329 pages

Susan L. Fowler, Victor R. Stanwick. (2004). Web Application Design, Morgan Kaufmann

Singh, A., Taneja, A., & Mangalaraj, G. (2009). Creating online surveys: some wisdom from the trenches tutorial. Professional Communication, IEEE Transactions on, 52(2), 197-212.

Sekaran, U. (1992). Research methods for business: a skill-building approach 2nd ed. USA: John Wiley & Sons, Inc

Sommerville, I. (2007). Software engineering (8th ed ed.). Harlow: Addison-Wesley.

Tronstad, B., Phillips. L., Garcia, J. & Harlow, M.A. (2009). Assessing the TIP online information literacy tutorial.

Thomas, M. A. (2003). Web-Based Surveys. Leader, Program Development and Evaluation. Ohio State University Extension Columbus, Ohio

Vaswani, V. (2010). MySQL database usage and administration. New York: McGraw-Hil.

Vate-U-Lan P. (2007). Internet-based Survey Design for University Web Sites: a Case Study of a Thai University, in School of Global Studies, Social Science and Planning. Melbourne: Royal Melbourne Institute of Technology University.

Wen, C. C. (2006). The Use of Modern Online Techniques and Mechanisms in Market Research. Paper presented at the Computational Intelligence for Modelling, Control and Automation.

Wossner, U., Schulze, J. P., Walz, S. P., & Lang, U., (2002). Evaluation of a collaborative volume rendering application in a distributed virtual environment. Switzerland, Eurographics Association Aire-la-Ville, PP. 113-118.

Wyatt, J.C. (2000). When to use Web-based surveys. Journal of The American Medical Informatics Association. 7(4). 426-429.

Zhao Dongsheng & Jia Wenjing (2009), Design and implementation of university educational decision support system on the students satisfaction survey, Computer Science-Technology and Applications. IFCSTA '09. International Forum on, IEEE Computer Society, Chongqing, pp.428-430.

Zulikha, J. & Ariffin, A.M. (2005). IT-graduate abilities: performance gap as an input for curriculum improvement. In Proceedings of 3rd International Conference on Information Technology: Research and Education (ITRE 2005). Taiwan. IEEE.