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USER PERCEPTION OF DATABASE MANAGEMENT VALUES

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ABSTRACT

The integration of database management systems with businesses has been wide spread over the years. There are several ways that database management has affected the technology that businesses use. The organizational demands for prompt service have caused a wave in developers to create new databases to meet growing business's needs. This study focused on the user's perception of the database management system they are using. A survey was designed specifically to ascertain the user's perception of the database system their business/work place was using. The survey was administered via interviews Face-to-Face in the New Orleans Central Business District and at universities. A survey was also posted on Facebook. The results of this survey indicate that 85% of the participants indicated that their database system is satisfactory and significant. About 67 % of businesses found their database systems are useful and complementary and 78% indicate that database systems are comprehensive and meet their business needs.

Key Words: *Small business, use perception, database management system*

CUSTOMER SERVICE & HOFSTEDE'S CULTURAL DIMENSIONS IN CHINA & THE USA AMONG ACCOUNTING INFORMATION SYSTEMS PROFESSIONALS

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ABSTRACT

According to a comparison done on geert-hofstede.com, one of the main differences between these two countries in terms of Hofstede's 6D model is the view of individualism. China has a very large believer that the term ""we"" should be stronger than the term ""I"". The United States, on the other hand, has a very high rating for individualism because this country has become known for the individual being more important than the group. This can affect customer service in many ways. Chinese customer service, based on the individualism scores, likely contains more black and white instructions on how to solve the problem at hand, mainly because the Chinese culture has taught them to become a part of the system, rather than stand out as an individual. The United States' customer service likely has a higher level of personal interaction with the customers because Americans do not only want to solve their problems, but they tend to want to get to know the customer on an individual basis.

INTRODUCTION

When comparing China and the United States using Hofstede's 6D model, numerous differences emerge. Concerning Power-Distance Index, the United States rates 40 and China rates 80. This means that Chinese culture is more comfortable with disparities in power between subordinates and supervisors. On Individualism, China scores 20, and the US scores 91.The US places a much greater emphasis on individual contributions and rewards. In the Masculinity category, China rates 66, and the US rates 62. Both countries value professional success and competition. With Uncertainty Avoidance, China scores 30 and the US scores 46. Both countries are comfortable with ambiguity, but China more so. In Long-term Orientation, China's rating is 87, and the US's is 26. China is much more oriented toward long-term planning, ans evidenced in their 5-year plans and predilection towards saving. Finally, under Indulgence, China rates 24, and the US rates 68. The US is much more oriented toward instant gratification.When it comes to the business world, customer service is considered as one of the most important aspects of having a successful business. It is important because of its benefits including: improved customer satisfaction, stronger customer loyalty, reduced marketing costs, competitive advantage, and improved market position. Considering Big Five Personality, these are following differences between customer service in the U.S. and customer service in China. Firstly, while

America uses a much more direct approach to help customers, China uses indirect to validate the other person. Secondly, the level of formality and friendliness varies from country to country and culture to culture. In the U.S., it is usual for a customer service representative or sales person in a store to ask “How are you? Are you finding everything ok? “However, in China, representatives would greet customers and then back off. Thirdly, customer service representatives in China often show strong personal responsibility for a customer’s problem and would not expect the customer to be part of the resolution while representatives in America expect to help solve the problem and move on. Based on Hoftede 6D model, we explore and compare the differences between the Chinese culture and The U.S. culture. Firstly, we consider the first dimension of power distance. In China, people believe that inequalities amongst people are acceptable and the power distance tends to be higher than the U.S. Secondly, we consider the dimension of Individualism. While the U.S rate toward individualism, China actually ranks toward the collectivistic side. Thirdly, we mention about dimension of Masculinity. China is a Masculine society –success oriented and driven while the U.S is close to the middle, slightly toward the masculine side. Next dimension is Uncertainty avoidance. China has a low score on Uncertainty Avoidance while The US scores below average, but higher than China. A fifth dimension is long term orientation. The United States scores normative on the fifth dimension while China is very high. Chinese can adapt traditions easily to changed conditions, and perseverance in achieving results. On the other hand, Americans measure their performance on a short-term basis. The final dimension is Indulgence. The U.S. is considered as Indulgent societies. Americans think “Work hard and play hard”, and if you have something on your mind, you are expected to say it directly. In contrast, China is restrained societies, and Chinese have the perception that their actions are restrained by social norms. Future research should look to the work of Carraher and Colleagues (1991 to present) for suggestions.

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HELP-SEEKING BEHAVIORS OF HBCU STUDENTS IN MOBILE-LEARNING ENVIRONMENT

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ABSTRACT

With the recent development of software applications and network connections, a smartphone can perform the functions of personal computers such as notebook and desktop computers. A smartphone can be used to do various things ranging from checking emails and taking notes to conducting research and writing papers. A growing number of Americans use smartphones to reach the Internet. Especially low income minorities are more likely use smartphones as a main means to access the Internet than other groups. While some major challenges exist for smartphones, such as slower and less reliable connection, small screen, and applications with limited functions, smartphones are becoming an increasingly popular tool for education and business. Smartphones make it possible for students to carry e-books, find answers quickly, improve communication with fellow students, and utilize audio and video materials for their education. Smartphones have become important tools especially in HBCUs where the majority students have a full time or a part times jobs and they are overwhelmingly commuter students. Typical students have difficulties to find a way to get help from fellow students, professors, or staffs outside of the class hours. Given this environment, HBCU students have some unique challenges in their help-seeking for learning. This paper is to investigate popular help sources that HBCU students prefer in m-learning environment. Also, factors that encourage or discourage HBCU students to seek help to improve their learning. The findings may assist professors and school administrators in class instructions and interaction with students.

FLEXIBLE SOFTWARE RELIABILITY GROWTH MODEL UNDER IMPERFECT DEBUGGING USING LEARNING FUNCTION

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ABSTRACT

Software reliability is a probability of a system to work failure free for a given period under given conditions. In this paper, we propose a new Software Reliability Growth Model (SRGM) with imperfect debugging using learning function. The model is validated on software real data sets and compared with the existing SGRMs in the literature.

INTRODUCTION

Expanding reliance of humankind on PCs and PC-based frameworks pulled in the consideration of the product architects and software engineers in mid-1970s to concentrate on the dependability part of software frameworks. Software reliability is a great measure to evaluate software failures, and it is the probability of failure-free operation of software for a time and in a predetermined situation (Goel & Okumoto, 1979; Kumar, 2010). Ohba (1984) refined the Goel and Okumoto model (1979) by accepting that the deficiency discovery/evacuation rate increments with time and that there are two sorts of shortcomings in the software. Though, Kapur and Garg (1992) depict a fault removal, where they expect that amid removal procedure of the faults of a portion of the extra blames may be detected without these faults bringing on any failure. These models can portray both exponential and S-shaped development bends and accordingly are termed as adaptable or flexible models (Kapur et al., 2009).

Kapur and Garg (1992) proposed the concept of imperfect debugging. If the fault that was causing the failure is not removed completely, the fault content of the software remains unchanged. The rest of the paper is organized as follows. The next section proposes a model with imperfect debugging using learning function followed by, the result analysis to validate the model using real data set, and results are also compared with existing models. The last section presents the conclusion of the paper.

PROPOSED SOFTWARE RELIABILITY GROWTH MODEL

To formulate the model, we assume the Non-Homogeneous Poisson Process (NHPP) model based on SRGMs and have the following assumptions (Goel and Okumoto, 1979; Kumar, 2010; Kapur et al., 2008 & 2011):

1. Faults lead to software failure during execution.
2. On observation of the failure, an immediate process starts to fix the fault.
3. The failure rate is straightforwardly corresponding to the faults left in the software.
4. During fault removal, fault content is reduced by probability of p.
5. The fault removal rate is expressed as learning function.

Assumption 4 captures the imperfect debugging, whereas assumption 5 incorporates the learning of testing team.

Proposed SRGM

Embedding the form of learning function (Kumar, 2010) in modeling our proposed SRGM and using assumption 5, the learning function is given by b(t), which is the function of time, constants α , β and fault removal rate b. The learning function is exponential in nature and is derived by the experience of the testing time. The fault content of the software is represented by the initial number of faults in the software at the start of testing.

The differential equation that describes the above assumption is given as:

$$\frac{dm_r(t)}{dt} = pf(t)[a(t) - m_r(t)] \qquad (1)$$

Where, $f(t) = \frac{\alpha + \beta t}{1 + ft}$,

$m_r(t)$ is the expected number of faults removed by time *t,* a(t) is the time dependent total fault content in the software, a is the initial number of faults, *f* is the constant fault removal rate, *f(t)* is the time dependent fault removal rate, *p* is the perfect debugging probability, and α, β is a constant of the learning function.

The above differential equation can be rewritten as:

$$\frac{dm_r(t)}{dt} = p\frac{\alpha + \beta t}{1 + ft}(a - m_r(t)) \qquad (2)$$

Solving the equation (2) with initial values as $m_r(0) = 0$, we get

$$m_r(t) = a[1 - (1 + ft)^{p(\frac{\beta}{f^2} - \frac{\alpha}{f})} e^{-p\frac{\beta}{f}t}] \qquad (3)$$

Case 1. If we put $\beta = f^2$ *and* $\alpha = f$ *then above equation (3) reduced to* Kapur and Garg (1992).

Case 2. If we put $\beta = f^2$, α *=0 and p=1 then above equation (3) reduced to* Yamada et al. (1983).

RESULT ANALYSIS

The proposed model is non-linear in nature. We use non-linear Regression method in SPSS (Statistical Package for Social Sciences) for parameter estimation (Kapur & Garg, 1992; Kumar, 2010; Khatri et al., 2012).

Comparison Criteria

A model can be analyzed by its ability to reproduce the observed behavior of the software (Kapur & Garg, 1992; Kumar, 2010). The comparison criteria (Kumar, 2010, Kapur et al., 2011) that are used are in this paper are:

1. The Mean Square Fitting Error (MSE)
2. The Sum of Squares Error (SSE)
3. Bias
4. Variation and Root Mean Square Prediction Error (RMSPE)
5. Coefficient of Multiple Determination (R^2)

Data Analysis and Model Comparison

Data set has been collected by Lyu (1998). It is a set of failure data collected over the course of 41 weeks; 350 software faults were observed. The parameters are estimated using SPSS and results are given in Table 1. The comparison criterion of the proposed models with the existing ones has been made in Table 2. The proposed model is compared with existing models regarding R^2, MSE, Bias, Variation and RMSPE. Values (nearer to 1) of R^2 gives better Goodness-of-fit. R^2 is best in the case of proposed model. Similarly, lower the values of Bias, Variation, and RMSPE indicate better Goodness-of-fit.

Table 1
PARAMETER ESTIMATES RESULTS OF DATA SET

Models	a	f	α	β	p
Kapur & Garg Model (1992)	513.782	0.040	-	-	0.808
Yamada et al. Model (1983)	377.228	0.118	-	-	-
Proposed Model	378.938	0.050	0.009	0.009	0.783

Table 2
COMPARISON CRITERIA RESULTS OF DATA SET

Models	SSE	MSE	Bias	**Variation**	**RMSPE**	**R^2**
Kapur & Garg Model (1992)	13574.68	331.08	1.654	18.120	18.195	0.974
Yamada et al. Model (1983)	8030.67	195.67	-2.124	191.362	191.374	0.985
Proposed Model	18555.67	452.57	-16.354	189.753	190.456	0.987

CONCLUSION

In this paper, we have proposed Software Reliability Growth Model with imperfect debugging with learning function. The concept of learning function has been incorporated in the fault detection rate to show the effect of learning function on the testing team as the testing grows. In the future, the probability of imperfect debugging may vary with time and change point concept can also be applied to this model.

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