

Measuring Student Perception and Actual Usage of Online Learning Management System

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Abstract

Online learning management systems are in use to facilitate the face to face learning process in many universities. There are many variables that shape and influence a student's perception of an online learning management system. This study investigates whether there is a relationship between the perception of a student regarding the learning management system and their actual usage of such system. It is believed to help better understand the student usage of online learning management system. An online questionnaire was published on a course management system for a selected subject and the student participation was voluntary. Results indicate that no significant relationship between the perception students had about the learning management system and the actual use of the system. Interestingly, a significant relationship was found between having internet access away from university and the student perception about the system. Students who had internet access away from university had better perception about the learning management system even though there was no significant difference in the level of online learning management system usage between the groups.

1. Background

With the rapidly increasing popularity of the Internet, the delivery of learning programs has gradually shifted from local desktop to online-based applications [1],[2]. Many educational institutes have tried to bring in learning management systems to facilitate the face to face learning process.

At Department of Computer Science and Engineering - University of Moratuwa, LearnOrg was started as a student academic project way before 2002[3]. LearnOrg- Moodle had combined the capabilities of a Learning Management System (LMS) with a Content Management System (CMS), the content management system used was Moodle.

Moodle is an OpenSource course management system for online teaching and learning. The acronym MOODLE stands for Modular Object Oriented Dynamic Learning Environment. Moodle was developed from a social constructivist perspective by Martin Dougiamas at Curtin University in Western Australia. (Dougiamas & Taylor, 2003, Cited in Kennedy 2005). [4] The acceptance and adoption of Moodle has been extremely successful and at the time of writing, in

196 countries there were more than 39000 registered Moodle sites and it was available in more than 70 languages [5].

University of Moratuwa adopted to use LearnOrg for all academic and course related activities [3] with in a span of few years. The entire University consisting of Faculty of Engineering, Faculty of Architecture and Faculty of Information Technology uses LearnOrg to manage its undergraduate and postgraduate courses and its user base has grown to about 8000.

However, during the past year it was observed that majority of the students did not respond to the notices made through the learning management systems regarding lecture schedules, additional reading material introduced and even quizzes or assignments made available through this system. Every time an assignment a quiz or a new resource material was made available there would be only few students who would be aware of that. The details of the number of students who have visited a particular resource could be extracted from the system logs and these numbers were not encouraging.

Any information system that is not used has little value in it. Therefore, it is important to find out given a choice why individuals elect to use or not use an information system [6]. This depends on what each individual values in the system and how far it is providing those facilities. The Technology Acceptance Model (TAM) [7] is a significant research in this area of research literature and it suggests that the usefulness and ease of use predict system usage through the mediating variables of attitude and intention. TAM model was extended to reflect the effect of perceived resources on attitudes toward using an IS by Mathieson, Peacock and Chin [6]. Examining the perceptions of a target population is used widely as perceptions matter and often influences behaviors [8].

There are many research done in the area of student satisfaction of e learning and online course management systems [8],[9],[10]. However, the factors influencing the satisfaction of such a system may vary among different societies. Even though the Learning Management System was used for quite some time at University of Moratuwa, little research was devoted on student perception of the system. This study is a preliminary investigation attempting to ascertain a relationship between the perception of the system and the actual use of the system.

In other parts of the world, research has investigated the students' perception of online learning and

learning management systems. A recent research has revealed that participants of an elective course with online component rated the online modules positively while those in the required course rated them marginally negative [9]. In a study evaluating the student perceptions of various e-learning components, the students' strongest preference was to submit assignments online and having the ability to check the grades online [10]. Research done at Monash University in Australia revealed that the students who experienced a well designed course rich with resources, timely feedback and interactions with the staff reported a positive experience with the technology [2]. Therefore, in collecting student feedback on the online system author used a specific course module so that the experience of the students would not bias the results.

3. Methodology

This research was done to explore the factors which students perceive to be important in a learning and course management system and to what extent they believe that the LearnOrg system provides them with these facilities. In this study, author expects to establish a relationship between the student perception of the online learning management system and their level of actual system use.

This survey was carried out among second year engineering undergraduates registered for CS 202 Data Structures and Algorithms subject. 201 undergraduates were registered for the subject and they were from three different specialization backgrounds namely; Computer Science and Engineering, Electronics and Telecommunications Engineering and Electrical Engineering.

Thirteen students who volunteered to participate in the initial stage of the study were interviewed by the author to identify the factors that influenced student perception of the system. Students revealed that the accessibility and response time, usefulness, user friendliness, reliability and security were important factors in determining their perception on the system as a whole. A questionnaire was prepared with Likert scale questions and under each question space was provided to facilitate their feed back on each. Each response was recorded with the student registration number to track the LearnOrg usage pattern of the student. System logs were used to collect usage patterns.

The questionnaire was published on their course management system and participation for this survey was voluntary. However, anonymity could not be provided as the researcher wanted to investigate their pattern of course management system usage.

4. Results

43 students participated in the survey out of which 24 completed the questionnaire. There were only 8.3% of females responding to the questionnaire. Students coming from 10 districts had responded to the questionnaire.

Each item of the questionnaire was presented with a 5 point likert scale response and these questions were used to measure the student perception of the system. Each question provided blank space for the student to provide their feed back on the questions. However, few students had used this space to provide their views.

Table 1: Descriptive statistics

| | Mean | Std. Deviation |
|----------------|--------|----------------|
| Ease of Use | 3.6389 | .57245 |
| Ease of Access | 3.8958 | .58938 |
| Resources | 2.8125 | .86994 |
| Security | 3.8750 | .85019 |
| Usefulness | 3.7917 | .52990 |

The usage pattern of students revealed that on average a student who took part in the survey had viewed the resources under CS202 course 42.7 times during the semester. These details were extracted using the activity logs facility in the Moodle. The fewest number of resource views made by a student was 19 and maximum was 85.

Out of the questions presented to identify each of the factors that students perceived to be important ease of access received the highest mean value of 3.89 while resources available to access the system received the lowest mean value of 2.81.

5. Discussions and Conclusion

The results show that on average a student accessed the LearnOrg system 42.7 times for the semester to view course resources under the subject CS202. The lecture slides, hand outs and assignments for this course were made available only through the CMS. There were four compulsory assignments, which meant that a student had to at least log on to the system to view resources under the course CS202 four times.

Out of the sample 13 students had Internet access facility at home. Out of the sample only 10 students travelled daily from home. None of the students who were boarded had Internet facility to their boarding places. This is not an overwhelming observation as only 0.7% of households are with internet facility according to the Department of Censes and Statistics – Sri Lanka [11].

The students whom were interviewed expressed their practice to over come the barrier of not having Internet facility at their boarding places. They used to download all course materials in to their local machines when they have Internet access at the University Computer Labs. When there are

recommended web sites, they used to visit the website and save the web pages one by one so that they could take the content and refer to it later. Some of the students did not have access to computers at the boarding places. These students used to download the contents and take printouts of the same to be referred later. When asked whether printed notes would be better than online material, it was evident that the students who did not have access to computers away from university hours strongly agreed to it. However, students who had Internet access and access to computers away from university hours neither agreed nor disagreed to the idea.

When Pearson's correlation was calculated for the variables in concern, there was a strong correlation (0.607) that was significant even at 1% level between having access to Internet and travelling to university from home. University of Moratuwa is situated in the Southern part of the Colombo district. With the prevailing transportation infrastructure it is only viable for students living in a maximum of 35-40 km radial distance to travel from home. This shows the disparity of economic development and facilities in the country as many of the students living near to Colombo enjoys the Internet access where as others living out of Colombo does not.

The number of years of experience in using Internet had a significant (5% level) correlation of 0.487 with having access to Internet from home. In addition a correlation coefficient of 0.583 having 1% level of significance was observed between number of years of experience using computers and number of years of experience using computers.

A weak correlation of 0.412 that was significant at 5% level was observed between the overall perception about the learning management system and having access to internet from home. This observation was a little disturbing as this would imply that the students having internet access at home would perceive the learning management system to be useful. Average value for the perception was calculated by averaging the values obtained for the ease of use, ease of access, availability of resources, the level of security provided and perceived usefulness of the system. Chi-square test was applied to test the distribution of this variable and since it was normal t-test was applied to test the difference of means of the two samples; perception of the system of students who have Internet access at home and who do not. The t value obtained was -2.18 and at 5% level the null hypothesis that is the means are equal was rejected. It was evident that at 5% level the mean value of perception of the student group with no Internet access at home was less than that of the student group who had Internet access at home. This shows that the student perception about the online learning management system is shaped by or influenced by the fact that they have access to

Internet from away from university hours. An interesting observation was made regarding this. The mean value of number of accesses by either group was found to be equal at 5% level. Therefore, the students who do not have Internet access away from university were not at a disadvantage however not having Internet access away from work had significantly affected their perception on the learning management system.

8. References

- [1] Brandi, K. "Are You Ready to 'MOODLE'?", *Language Learning and Technology* (9:2), May 2005, pp.16 – 23.
- [2] Weaver, D., Spratt, C. and Nair, C.S. "Academic and student use of a learning management system: Implications for quality", *Australian Journal of Educational Technology* (24:1), 2008, pp. 30-41.
- [3] Perera, G.I.U.S "Improving Agile Software Development: A Case Study on Adaptive System Development", Master of Science (Research) Thesis 2008, Department of computer Science and Engineering, University of Moratuwa.
- [4] Kennedy, D.M. "Challenges in evaluating Hong Kong students perceptions of Moodle", in *Conference Proceedings of Australasian Society for Computers in Learning in Tertiary Education (ascilite)* December 2005, Brisbane, pp 327 – 336.
- [5] Moodle Official Website, Retrieved March,28 2008, from:<http://moodle.org/>
- [6] Mathieson, K., Peacock, E. and Chin, W.W. "Extending the Technology Acceptance Model: The Influence of Perceived User Resources", *The Database for Advances in Information Systems*(32:3), Summer 2001, pp 86 - 112.
- [7] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models", *Management Science* (35), 1989, pp. 982 – 1003.
- [8] Jurczyk, J., Benson, S.N.K. and Savery, J.R. "Measuring Student Perceptions in Web-Based Courses: A Standards-Based Approach", *Online Journal of Distance Learning Administration* (7:4), Winter 2004.
- [9] Smart, K.L. and Cappel, J.J "Students' Perceptions of Online Learning: A Comparative Study", *Journal of Information Technology Education* (5), 2006, pp. 201-219.
- [10] Buzzetto-More, N.A "Student Perceptions of Various E-Learning Components", *Interdisciplinary Journal of E-Learning and Learning Objects* (4), 2008, pp. 113-135.

[11] Department of Censes and Statistics – Sri Lanka Computer Literacy of Sri Lanka, Retrieved August, 26 2007, from:<http://www.statistics.gov.lk/cls2004/index.htm>

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