Enhancing Learning In Psychology Online Course Management System: Tool for Enhancing Learning in General Psychology

[1]Dr. Dorothea C. Dela Cruz, [2]Ms. Edna T. Costuna, [3]Ms. Eva E. Pacayra, [4]Ms. Josephine F. Santonia

Centro Escolar University

Abstract: **The study aimed to find out the efficiency of a MOODLE supported teaching environment for enhancing learning in General Psychology. MOODLE is a free online course management system. Four classes were matched based on the result of a diagnostic test. Two classes were assigned to a MOODLE environment teaching on selected topics for the duration of a semester while the other two went to the classroom environment group without access to resources in MOODLE. Both groups yielded very significant difference between their pretest and posttest scores. In the MOODLE enviroment group, a mean difference of 3 points was consistent for the three grading periods with the highest confidence interval of 2 to 4 points. In the classroom environment group, the highest mean difference was 4 points with a confidence interval of 3 to 5 points. Comparing the posttest scores of the MOODLE and the classroom groups, a significant difference was noted in the last grading period with the MOODLE group scoring 2 points higher. These indicate that learning in the classroom with interaction between teacher and other learners resulted to higher scores in a quiz compared to learning the topic by plain access to MOODLE uploaded resources. However, efficacy and confidence in using the computer to access resources in MOODLE that happened over time gives students better chance in getting a high score in a quiz of knowledge and comprehension.**

Keywords: **MOODLE uploaded resources, General Psychology.**

1. INTRODUCTION

Improvements in technology have offered an unprecedented opprotuity to improve learning and teaching within the higher education system (Turney, et al., 2009). Oliver and McLoughlin (2001) present a theoretically grounded argument that web-based environments can 'scaffold' learning in a unique way (cited by Frederickson et al., 2005). Frederickson et al. (2005) enumerated the many ways in which Information and Communication Technology (ICT) can be used to support teaching and learning. It includes: (1) classroom-based teaching supplemented by lecture notes posted on a web site or by electronic communication; (2) availability of materials and interactions occuring exclusively through networked technologies (Salmon, 2000); (3) provision of additional forums to support the traditional face-to-face contexts; and (4) enhanced opportunities that facilitate collaboration, e.g. tutor monitoring of and contribution to simultaneous discussion groups.

The CEU Department of Psychology ventured into this teaching innovation of taking advantage of electronic and information technology. The vehicle was the use of Modular

Object-Oriented Dynamic Learning Environment (MOODLE), a free and open-source software program. MOODLE has improved and enhanced student performance by promoting and organzing communication between students and teaching thus reducing distractions and roadblocks to science learning (Perkins, Pfaffman, 2006).

This study aimed to test the efficiency of using a MOODLE supported teaching Environment in enhancing learning in General Psychology.

2. METHOD

This undertaking came about in two phases. First was the training and development phase. Four teachers handling General Psychology classes were trained in the use of the features of the MOODLE. Part of the training was to decide on specific lessons and design a teaching module with exercises which were uploaded in the MOODLE. The topics chosen were Human Development, Personality, and Emotions and Motivation. This phase was concluded after trying it out with a summer class in General Psychology. The feedback from the teacher and the students were utilized in revising the instruction handout for the students' enrolment and access to MOODLE as well as in revising the teaching modules and exercises uploaded in the MOODLE. The second was the implementation phase. A diagnostic test in General Pyschology was administered to all classes in General Psychology for the first semester of schoolyear 2011-2012. This aimed to establish comparability. Out of the four classes with statistically comparable scores in the diagnostic test, two classes were assigned to the MOODLE environment group which were taught to enroll and access lessons and exercises in the MOODLE; and the other two to the classroom environment group where lessons were discussed face to face with the teacher and classmates. Both groups were facilitated by the same teacher. The three topics were spread in the three grading periods: Human Development for Prelim, Motivation and Emotion for Midterm, and Personality for Finals. Pretest and posttest was given for each topic.

3. RESULTS

Table 1 shows the mean, the mean difference, and the test of significance between the pretest and the posttest scores in the two types of teaching environment. Inspection of these data shows that there was an increase in the posttest scores for both types of environment. The MOODLE group displayed consistent 3-point gain with a 95 percent confidence interval of 2 to 3 points. The classroom group, though not consistent in mean difference across the three grading periods, registered a higher gain of 4 points and a higher confidence interval of 3 to 5 points compared to the MOODLE group.

Table 1. Evaluation Measure for the Two Types of Teaching Environment

Variable p-value	Grading Period	Measures	Mean(SD)*	Mean Diff.* (95%CI)
MOODLE .000	Prelim	Pretest	9 (2)	3 (2 to 4)
Environment		Posttest	12 (5)	
.000	Midterm	Pretest	11 (4)	3 (2 to 3)
		Posttest	14 (3)	
.000	Finals	Pretest	5 (2)	3 (2 to 3)
		Posttest	8 (2)	
Classroom .000	Prelim	Pretest	9 (2)	3 (2 to 4)
Environment		Posttest	11 (3)	
.000	Midterm	Pretest	10 (3)	4 (3 to 5)
		Posttest	14 (4)	
.000	Finals	Pretest	5 (1)	1 (1 to 2)
		Posttest	6 (2)	

*Quiz scores rounded off to whole numbers.

The data suggests that the interaction with teacher and classmates afforded in the classroom environment resultet to higher gain in a quiz score of knowledge and comprehension. Feedback from the teacher revealed that students in the MOODLE group requested that the topics be talked openly in class aside from access to MOODLE resources. Table 2 compares the posttest scores between the two teaching environment. Data shows very significant difference only in the third grading period with the MOODLE group scoring 2 points better.

Table 2. Comparison of the Students' Performance in the Two Types of Teaching Environment

Time of Evaluation p-value (Posttest)	Variable	Mean (SD)*	Mean Diff.*
Prelim .510	MOODLE Environment	12 (5)	.41
	Classroom Environment	11 (3)	
Midterm .833	MOODLE Environment	14 (3)	.12
	Classroom Environment	14 (4)	
Finals .000	MOODLE Environment	8 (2)	2
	Classroom Environment	6 (2)	

*Quiz scores rounded off to whole numbers.

Feedback from the teacher revealed that it took time for the students to be confident and efficient in using computers to access MOODLE. The teacher had to conduct additional MOODLE demonstration sessions during Prelim and get help from the students confident of their IT skills to encourage and tutor the majority in the class during Midterm. The teacher reported that students remarked to have the confidence and efficiency in accessing MOODLE resources during Finals. This improvement over time in using MOODLE and the availability of the teacher for consultation and the interaction with the more computer savvy classmates could account for the significant difference in the classroom performance of the students in the MOODLE environment which occured in the last grading period.

4. DISCUSSION

The results showed that there were gains in knowledge and comprehension whether the lesson was taken through electronic means or modified lecture in the classroom. Inspection of the mean difference and confidence interval, however, showed that higher gain occured in the classroom environment condition. This corroborates the findings of Sarkozi (2001). That although there was no significant difference in the test performance of college students who attended traditional classroom and those enrolled in an on-line version; the discrepancy in the scores was found in the quality of student learning. Results show that the kind of discussions experienced by the students in the classroom were more substantive. Sarkozi (2001) concluded that although technology could provide the information instantly, it takes time to ponder and give the interpretation to these information.

Based on the feedback given by the teacher handling both MOODLE supported and classroom environment set-up; students in the MOODLE environment requested that the topics they access on-line be still talked about in the classroom where students could express themselves and listen to the ideas and experiences of classmates. This is similar to the study of Maki et al. (cited in Frederickson et al., 2005) where the lecture course in the classroom received higher satisfaction

ratings. This points to the importance of teacher and peer factors, vis-a-vis, interaction, in scaffolding learning. Perkins and Pfaffman (2006) concluded that MOODLE has improved and enhanced student performance by promoting and organizing communication between students and teaching. In this study, however, training in maximizing these features of the MOODLE which facilitate triadic communication (teacher-student-peer) was cut short.

When the gains between the MOODLE environment and the classroom environment were compared, a very significant difference was noted in the third grading period in favor of the MOODLE environment. This can be accounted for by the improvement in computer use for MOODLE access acquired over time. Feedback from the teacher revealed that additional MOODLE demonstration session was given and help from confident students with good IT skills to tutor less confident students with poor IT skills were solicited. This fostered interaction between teacher and students and between peers which facilitated learning about MOODLE features and also about the lectures uploaded in it. Thus, successful use of technology should consider an audit of IT skills of users as well the confidence of users in its features. In the study of Frederickson et al. (2005) where qualitative data about what helped and what hindered learning in web-based environment and classroom (lecture) environment was gathered; the top notable helpful feature was provision of resource material under the web-based environment. The capacity to access available materials posted in the web at the students own pace and frequency could account for the better performance of the MOODLE environment group over classroom environment group in the last grading period. This could have been corroborated with an analysis of variance with time as the second factor and with qualitative data gathered from the students.

It was also noted based from the feedback of the teacher, that the students showed reluctance in using MOODLE for the selected topics and were convincing the teacher to just present the topics in class. Thus, it is not just IT skills that matters but also rules of practice to make effective use of a new tool for learning that somehow impacts on the role of the students as learners and the division of responsibility between the learners and the teacher for the learning of a course material (Issroff and Scanlon, 2002, cited in Frederickson et al., 2005).

5. RECOMMENDATIONS

Base on the results of the study, the following recommendations are made:

1. Maximize the features of the MOODLE to facilitate triadic communication (teacher-student-peer).

2. There should be more additional MOODLE demonstration session to foster interaction between teacher and students and between peers which facilitated learning about MOODLE featur

3. The available materials to be posted in the web should be easily accessed at the students own pace for better performance of the MOODLE environment group.

4. Rules of practice to make effective use of a new tool for learning should be explained further to make a strong impact as to the understanding of the role of the students as learners and the division of responsibility between the learners and the teacher for the learning of a course material.

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