Extended Summary

Students’ Opinions on Administering Optional Online Quizzes in a two-year College Mathematics Course

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In this study, determining students’ opinions about optional online quiz used under the content of blended instruction applied by using MOODLE were aimed. Blended instruction has been created using a combination of face-to-face instruction with web-based learning management system. In addition, significance of differences of students’ opinions according to the school they graduated, to the type of status to own a computer, internet connection and previously having exams over internet were examined.

In the study that aimed to assess the current situation descriptive method is used. This study was conducted on 103 students of Mathematics-I course at a military vocational college for Online Quiz Evaluation form. Mathematics-I course is designed using a blended method took 15 weeks. In the blended method, students and faculty work face to face courses about 100 minutes for each week, and course materials and sample questions are presented to students via intranet LMS by instructor. Prepared course quizzes have been applied online in order to make effective use of face to face instruction time. Each of LMS quizzes of the learning units is given separately. In this study, courses have been conducted in the classroom setting and MS Powerpoint presentations, lecture notes and quizzes were presented to students via the intranet. Optional online quizzes based learning units with a total of 126-multiple-choice test item pool was provided for the benefit of students. In the end of the semester Online Quiz Evaluation Form was applied to students to determine their opinions about optional online quizzes. Online Quiz Evaluation Form has been answered by 103 students. Moodle LMS test activities includes multiple applications of quizzes and provides immediate feedback. The Moodle LMS for Mathematics-I course included five learning units; Numbers and Algebra, Equations and Inequalities, Functions, Matrices and Determinants, Logarithms. Additionally, achievement test was presented in LMS to students as a final exam of all of the issues. Online quizzes consisted of five multiple choice items and
students were able to practice as much as they want. System automatically constitutes quiz by selecting five questions randomly from the question bank for a unit. Students when they want to quiz the second time against the same subject, different questions show up. LMS evaluates students' answers instantly and provides feedback immediately, if the answer is incorrect, the correct answer shows up. Data was analyzed using frequency, mean and t-test.

As seen in Table 2, the lowest level of achievement on the basis of learning units belongs to logarithms unit. Average learning level of Logarithms was found 49.51 out of 100 points. The highest achievement level with an average of 73.42 belongs to the unit of Matrices and Determinants. The learning levels of each learning outcome for each unit were found insufficient for mastery learning criteria of Bloom. In this case, it is concluded that for all of the units in addition to compensatory learning activities should be provided to students. As shown in Table 3, 12 items related to the Logarithms unit have item difficulty levels between .24 and .74. So students access level to what item 7 and 12 measures is very low (24%). Consequently students achievement levels for what item 7 and 12 measures are very low (24%). On the other hand, what item 2 and 7 measures have the highest level of learning access for students (74%). In general students have very low learning accesses or difficulties in learning related to the logarithms unit. As seen in Table 4, students do not agree the item of "Quizzes applied online was not contributed to my learning, of course they are just an ornament". A majority of students stated out that online quizzes were suitable for Mathematics, and contributed to their learning. In general it has been found that students were undecided about online quizzes. According to Table 5, computer owners found that issues of Mathematics-I immeasurably complex to measure by using multiple-choice items, while they found online quizzes safe and healthy. Significant differences have been found in favor of computer owners about preferring computers for class related procedures and preferring online quizzes and exams rather than paper-pencil exams. Those who own a computer compare to who does not own a computer significantly prefers to have online quiz applications in the other courses. According to Table 6, students who have internet connection at home have found online quizzes for Mathematics-I, suitable as safe as conventional methods and healthier than conventional methods. In addition, students with an internet connection from homes stressed that they would prefer to use a computer rather

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than using paper and pencil on the course activities, instead of the conventional test they would prefer to have online quizzes. They also pointed out that online quizzes contribute to the learning due to the instant feedback, and they want to see online quizzes in other courses taken. As it is seen in Table 7, some significant differences were found in favor of students who previously participated online exam activities about importance of online quizzes for school effectiveness, suitability of online quizzes for Mathematics-I course, safety of online quiz assessment as much as conventional methods, and preferring a computer rather than using paper and pencil on the course activities.

Determining students' views about online quizzes is the first step of developing and implementing for effective e-assessment and e-learning environment. With the development of information technology, e-assessment system has been implemented in many forms. Due to development of question banking, in the process of the implementation of online testing provides major advantages of saving time in scoring tests and using resources in an effective way. However, it should be noted that especially in courses such as Mathematics-I, creating question bank takes quite some time and additional work for the teaching staff. In this study, only multiple-choice items were created using the online quizzes, but different item types would be created to use in the quizzes. Scores of online quizzes not reflected to students' achievement scores, so that instead of taken scores, seen quizzes as an opportunity for effective learning was targeted for students. Students' interest on online quizzes was lower than expected. To increase students' interest and motivation in online quizzes, online quiz scores can be involved in the assessment of student achievement. By doing this students' interest to course and academic success would be improved. In general, students' opinions about online quizzes were "undecided" (with means between 2.60-3.39). This finding may be due to having a large majority of the students that experienced online quizzes first time. Online quiz application for Mathematics has been approved by students. Students stressed that the online quizzes importantly contribute to their learning. Online quizzes with instant feedback feature, students can be directed to the relevant course notes might contribute to their learning. Students who own a computer, compared to students who do not own a computer have more positive opinions about online quizzes. Similar conclusion (possessing
more positive opinions) is valid for student with internet connection in their home and students with web-based exam experience.