



February 2018

Electronic Rubric Grading: Establishing a Foundation for the Future

Jayzona A. Alberto
Western University of Health Sciences

Jorge Godinez Jr.
Western University of Health Sciences

Follow this and additional works at: <https://digitalcommons.montclair.edu/eldj>

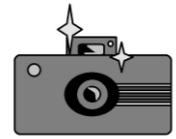


Part of the [Curriculum and Instruction Commons](#), and the [Instructional Media Design Commons](#)

Recommended Citation

Alberto, Jayzona A. and Godinez, Jorge Jr. (2018) "Electronic Rubric Grading: Establishing a Foundation for the Future," *The Emerging Learning Design Journal*: Vol. 4 : Iss. 1 , Article 4.
Available at: <https://digitalcommons.montclair.edu/eldj/vol4/iss1/4>

This Brief is brought to you for free and open access by the Journals at Montclair State University Digital Commons. It has been accepted for inclusion in The Emerging Learning Design Journal by an authorized editor of Montclair State University Digital Commons. For more information, please contact digitalcommons@montclair.edu.



Electronic Rubric Grading: Establishing a Foundation for the Future

Jayzona A. Alberto and Jorge Godinez, Jr.

Academic and Digital Media Manager, College of Dental Medicine, Western University of Health Sciences
jalberto@westernu.edu
April 29, 2017

ABSTRACT

Many institutions of higher education measure learning outcomes through performance-based assessments or rubrics, resulting in the exploration of innovative methods to administer these types of assessments (Anglin, Anglin, Schumann & Kaliski, 2008). At Western University of Health Sciences – College of Dental Medicine, performance-based assessments have been transformed into interactive, electronic versions in which faculty graders use their computers or mobile devices to submit scored rubrics complete with feedback for the students. A major advantage of the software, ExamSoft, we utilize is the ability to link learning outcomes to assessments, resulting in generating robust reports that display longitudinal data for individual students and each cohort. A pilot test was launched in December 2014 and lasted through February 2015 in order to gather data and improve processes prior to fully transitioning to electronic rubrics for dental competency exams. The development, implementation, and launching of electronic rubric grading was challenging, yet produced numerous benefits for the dental program. Faculty, staff, and administration can generate more robust reports that measure students' institutional and program learning outcomes. With this data, longitudinal reports are a means to track and measure student outcomes. The transition to electronic grading has also resulted in a streamlined process, efficient and smoother workflow, decrease in the likelihood of miscalculations due to human error, quicker turnaround for releasing grades and feedback to faculty members and students, and data to support recommended improvements to the curriculum. Our advancement in electronic grading ensures our place at the forefront of dental education, assessment technologies, and higher education.

Keywords: Assessment, Dental Education, Assessment Technology, Educational Technology

INTRODUCTION

Western University of Health Sciences – College of Dental Medicine (WesternU CDM) consists of approximately 280 students and 100 faculty members. In the final two years of the program, students are required to challenge clinical exams to demonstrate competency in dental procedures on live patients in the college-operated dental clinic. Previously, two faculty graders scored students' performance on dental procedures using paper rubrics and hand deliver them to staff members, who would calculate scores, update a grade spreadsheet, and scan and file the rubrics. Figure 1 illustrates the multi-step, multiple day process of reporting scores. Additionally, miscalculations due to human error, misplacement of the paper rubrics, and slow score turnaround proved to be problematic for students, faculty, and staff. In order to address these

issues, the implementation of an electronic rubric grading system was developed and established.

Objectives for Transitioning from Paper to Electronic Rubric Grading

- Full implementation of electronic clinical rubric grading in the College's dental clinic and off-site community clinics.
- Utilization of ExamSoft®, an electronic assessment software capable of generating longitudinal reports in order to assess student progress over time in regards to institutional learning outcomes (ILOs) and program learning outcomes (PLOs).
- Streamlining of electronic rubric grading workflow to increase efficiency and maximize use of staff and faculty time.

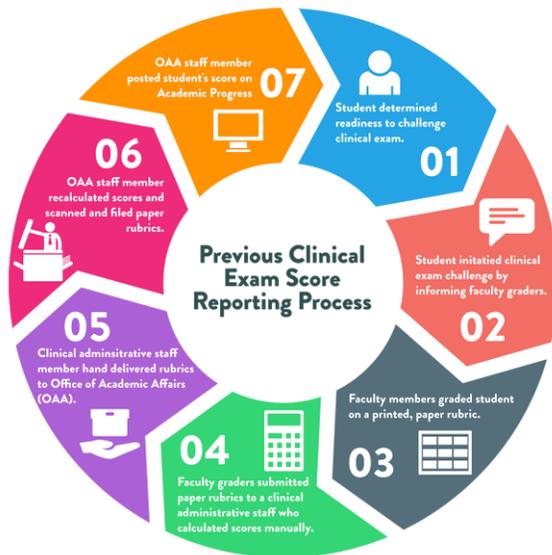
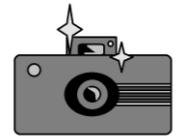


Figure 1. Previous clinical exam workflow.

Methodology

Phase 1: Beta Testing. The College was selected to beta test ExamSoft's® rubric feature because it was already using the software for written examinations and faculty, staff, and students were familiar with the system. Faculty scored students on two low stakes performance-based exams using the electronic rubrics and provided feedback to academic affairs staff in regards to usability, design, and workflow improvements.

Phase 2: Pilot Testing. During the pilot test, four of ten live patient, clinical exam rubrics were used. Faculty attended a one-hour training session in which academic affairs staff trained them to score rubrics using an electronic device. A staff-person developed a PowerPoint presentation to explain the log-in process and methods of navigating to a student's rubric within the ExamSoft® system. Faculty learned to use the electronic rubrics quickly due to the user-friendly nature of ExamSoft®. The entire process entailed logging into the portal, clicking on the student's name and appropriate rubric, and clicking on the criteria boxes associated with the score; this is illustrated in *Figure 2*. Additionally, a staff member created a pocket reference guide and an instructional manual outlining the abovementioned process for the faculty to reference. Staff observed the faculty on the clinic floor to collect instant feedback and data directly from the source, which

was crucial in implementing immediate improvements to the process.



Figure 2. Faculty member utilizing Examsoft® on iPad during pilot testing.

Phase 3: Full Implementation. All faculty were required by College administration to submit their final paper rubrics prior to the transition to ExamSoft®. Faculty members who were comfortable grading in the portal assisted colleagues in navigating the system and scoring the rubrics. To improve software usability on the wifi-based iPads, automatic log-ins were set up on the ExamSoft® grading portal to allow quick and easy access to the home page. The devices were secured by setting a passcode for the faculty to enter when unlocking the iPad. Finally, staff set up ExamSoft® accounts for the College's off-site community clinics.

The most important improvement was the refinement of the Microsoft® SharePoint® form that is submitted by students who are ready to perform a dental procedure on a patient. The SharePoint® form evolved into the main method of tracking the release of student scores. Staff members minimized the number of fields on the form to make it easy for a student to submit the form while they are on the clinic floor. Once rubric grading is finished in ExamSoft®, staff revisit the form and indicate that the rubric scores were released to the student. With the implementation of electronic rubric grading, the total staff time was reduced from a few business days obtaining and calculating scores on the paper rubrics to about two hours with the electronic rubrics. *Figure 3* illustrates the current clinical exam reporting process.

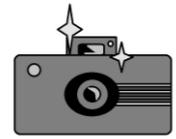


Figure 3. Newly implemented clinical exam workflow process.

- Outcomes Achieved Through Transitioning from Paper to Electronic Rubric Grading Successful implementation of electronic rubric grading system that produces robust student performance data on institutional and program learning outcomes.
- Utilization of the longitudinal analysis reports generated through ExamSoft® to determine whether students are meeting expectations for specific dental competencies.
- Demonstration of cohort performance on specific accreditation standards through the longitudinal analysis data.
- Visual representations of longitudinal analysis data are provided to college committees as well as university administration.
- Evaluation and assessment of student performance data. Individual students are compared against their cohort to determine if they may be on the threshold of failing a course. Additionally, if a student does not pass a course, a staff member generates a report exhibiting which specific competencies need improvement.
- Faculty advisors can identify an advisee's areas of weakness and offer additional tutoring or academic support.

- Students may track progress related to dental competencies and identify strengths and weaknesses so that they can focus their learning on areas that need improvement.

Conclusions

The College transitioned from scoring dental students' performance on clinical competency exams on paper to electronic rubrics in approximately 14 months. The adoption of an electronic rubric grading system resulted in the reduction of faculty and staff time spent processing scores, improvement of departmental workflows, reduction of paper and printing costs, minimization of calculation errors, ability to track student performance, ability to identify the need for instructional interventions, and enhancements to the curriculum. An electronic rubric grading system can be developed for any educational setting, but planning and preparation are key to producing a well-executed implementation. Although a daunting endeavor, institutions should not be deterred as the ultimate goal is improving the student learning experience.

REFERENCES

- Anglin, L., Anglin, K., Schumann, P. L. & Kaliski, J. A. (2008). Improving the efficiency and effectiveness of grading through the use of computer-assisted grading rubrics. *Decision Sciences Journal of Innovative Education*, 6: 51-73. doi:10.1111/j.1540-4609.2007.00153.x



This work is licensed under a Creative Commons Attribution-Non-Commercial-No Derivatives 4.0 International License [CC BY-NC-ND 4.0]

This article is being published as a proceeding of the 2016 Emerging Learning Design Conference (ELDc 2016).