Quiz-Enhanced Podcasts for Cutting Redundancy and Excessive Detail

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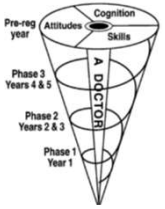
Context

Des Moines University employs a spiral curriculum, which requires that first-year Basic Science concepts are reviewed in the clinical context of second year courses[1]. For the review of Biochemistry, hour-long lectures have been problematic as the foundational, unique content does not fill the available time. In these situations, faculty are tempted to expand their presentation with material that is not relevant, unique or appropriate for the level of the trainee[2]. In essence, faculty offers content by the bottle when students only need a glass.



The spiral curriculum. Harden, R. M. (1999)

This study examines if Quiz-enhanced Podcasts (QEPs), interactive versions of the popular podcast format[3], are more effective than lectures for the review of Biochemistry in second-year clinical courses in the Doctor of Podiatry program.

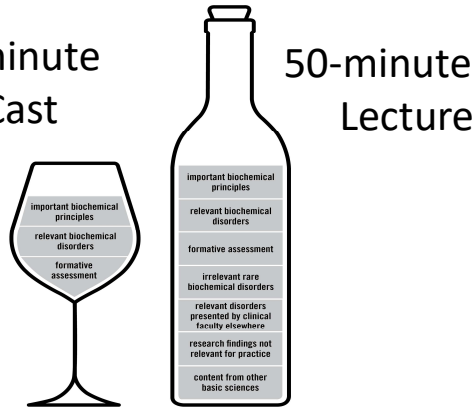
Experimental Questions

Can hour-long Biochemistry reviews in clinical systems courses be substituted by QEPs that focus on exclusive, relevant content?

What are the students' utilization patterns and subjective assessments of QEPs in terms of effectiveness and adequacy for the review of Biochemistry?

On offer:

10-minute PodCast



50-minute Lecture

How much Biochemistry Review does a second-year student need? We hypothesize that a glass of principles, relevant disorders and formative assessment suffices. Why offer a bottle filled with extra irrelevant and redundant content instead?

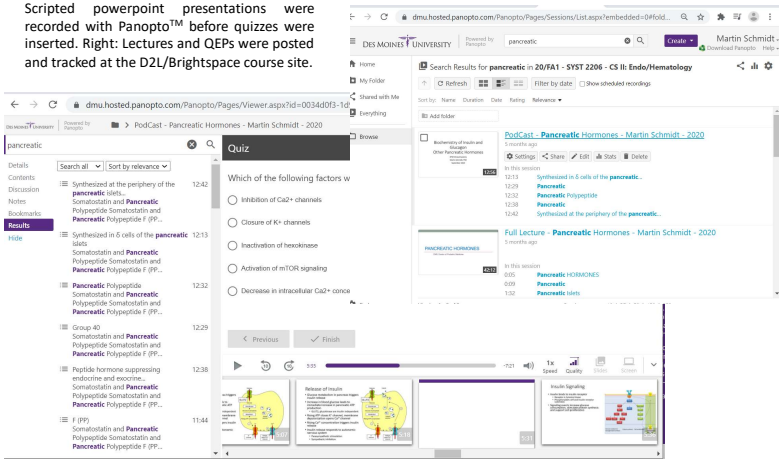
Methods

Design: The study describes the outcomes of a non-randomized cohort study on the utilization of a novel educational tool, supplemented with a survey of the study participants' opinions on the tool's effectiveness.

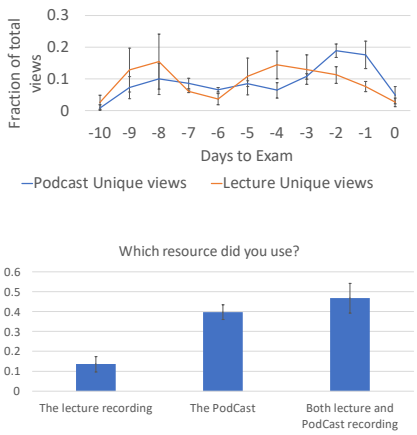
Setting and participants: The study took place in the DMU-Doctor of Podiatric Medicine second-year curriculum in the fall of 2020. All 53 members of the DPM23 cohort were invited to participate. No incentive was given for participation (IRB exempt).

Interventions: Lecture-equivalent 6-15 minute QEPs were recorded for 4 Biochemistry lecture using the Panopto™ video capture system. QEPs were designed in consultation with an instructional design professional, featuring scripted PowerPoint™ presentations and annotated quizzes. Students were free to choose pre-recorded lecture, QEPS or both delivery methods to meet the sessions' learning objectives. After the exam, students were invited to rate the podcast in terms of effectiveness and usefulness with an anonymous Qualtrics survey. Utilization of recordings was tracked using the Panopto™ reporting feature. Quiz scores, although available, were not analyzed because the effects of self-selected intervention choice were confounding the results.

QEP structure and distribution. Bottom: Scripted powerpoint presentations were recorded with Panopto™ before quizzes were inserted. Right: Lectures and QEPs were posted and tracked at the D2L/Brightspace course site.

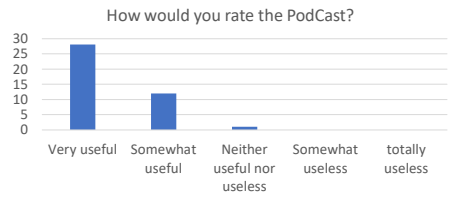


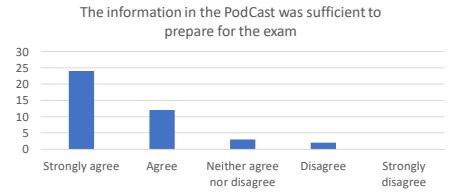
Results – Utilization of QEPs



Usage data show that students utilized QEPs more often than lecture recordings (214 vs. 198 total views), with QEP viewing peaking notably two days before the exam (top). Survey results indicate that most students (47 +/- 8%) utilized both QEP and lecture, with a preference for utilizing QEPs for immediate exam preparation (bottom).

Results – Perception of QEPs





Students reported spending significantly less time using QEPs than lecture recording (47+/-46 vs. 104 +/-72 min, p=0.0002). Top: QEPs were rated very useful/somewhat useful by 97% of respondents, even if 5% of respondents indicated that the information in the QEP was not sufficient to prepare for the exam (bottom). The most common theme in student free text comments was that QEP and lecture both have merit, and that having QEPs in addition to lectures was preferable to getting QEP as lecture replacement.

Conclusions

Concise reviews of Biochemistry, offered through quiz-enhanced podcasts (QEPs), are clearly a valued addition to the second-year medical curriculum.

While some students would still prefer to have the option of full-length lectures, most students rate the QEPs as an effective means for review – particularly in the preparation for an exam.

We found that, when offered content by the bottle or the glass, students opted to have the bottle first and to save a glass for later.

[1] Harden, R. M. (1999) What is a spiral curriculum?, *Med Teach 21*, 141-143.

[2] Royal, K. D., Gilliland, K. O., and Dent, G. A. (2014) A Student-Led Methodology for Evaluating Curricular Redundancy, *Journal of MultiDisciplinary Evaluation 10*, 1-8.

[3] Cho, D., Cosimini, M., and Espinoza, J. (2017) Podcasting in medical education: a review of the literature, *Korean J Med Educ 29*, 229-239.