Fortifying asynchronous online learning with digitally delivered in-person assessments to leverage the testing effect

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Table 1. STEM instructional methods strengths and weaknesses.

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<tr>
<th>Delivery</th>
<th>Strengths</th>
<th>Weaknesses</th>
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<tr>
<td>Conventional</td>
<td>Status quo bias; some advantages for large class sizes</td>
<td>Lack of content engagement, potential for cheating, may not teach soft skills, lectures may inhibit learning</td>
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<tr>
<td>MOOC</td>
<td>High instructor productivity—can reach thousands of students</td>
<td>No authentication, low retention, requires good Internet access, manual grading is difficult</td>
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<td>Blended</td>
<td>Videos improve comprehension and student enjoyment; in-class time is reallocated to active learning and productive activities</td>
<td>Students may be unprepared or resistant, coursework must be tailored to be effective, may lack instant feedback</td>
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</tbody>
</table>

Mixed-Mode LMS Layout

Figure 1. Hybrid STEM course with rich, interactive modules, study sets with worked examples, and dynamic test guides.

Score Clarification Improves Learning

Figure 2. The EPC is not just for proctored testing, but also open tutoring and exam prep. Tutoring, lab, and sign-in areas are separate from assessment areas to maintain quietness.

EPC Integrity Gains

Figure 3. Through digitized quizzes, faculty can use dynamic variables, partial credit, scripted feedback, and more. Proctored delivery prevents cheating and increases content acquisition via the testing effect. Faculty typically provide a 3-day window for students to schedule their quiz.

Table 2. Course schedule for Digitizing and Remediating STEM Assessments faculty workshop, Summer 2017. At UCF, we educate faculty from diverse STEM fields on how to digitize their assessments and integrate the EPC into their courses. As an incentive, we offer a course release.

Imagine not having to create new questions every semester, not having to administer exams, and having a support staff to explain grades to students. The EPC approach frees your time for teaching, research, and other high-impact work.