Enhancing the Online Experience through Interactive Technologies: An Empirical Analysis of Technology Usage in Community College

Zawadi Rucks-Ahidiana, Community College Research Center
Melissa Barragan, Community College Research Center
Nikki Edgecombe, Community College Research Center

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Interactive Technologies

• **Definition**: Software or technological tool that promotes substantive interaction with content, instructors, and other students.

• Integrating interactive technologies alone has been found not to influence course outcomes (U.S. Department of Education, 2009).

  • **Purposeful** integration in support of learning objectives is most effective.
Our Study

• This study explores *what* interactive tools are used in online courses and *how* they are being used.
  
  • What range of tools are most frequently used?
  
  • For what purpose are these tools being used?
  
  • How do these tools affect interactions among students, instructors, and content and students’ reported learning experiences?
  
• Data sources include interviews with online instructors and students as well as virtual observations of online courses.
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<tr>
<th>Tool Categories &amp; Prevalence</th>
<th>Definition</th>
<th>Types of Tools</th>
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<tbody>
<tr>
<td><strong>Archivable Presentations:</strong> 15/23 Instructors (65%)</td>
<td>Document course presentations in an archive form that can be accessed for future use</td>
<td>• Wimba • Podcasts • Adobe Connect • PowerPoint • LiveScribe • Panopto</td>
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<td><strong>Communication Forums:</strong> 22/23 (95%)</td>
<td>Facilitate interactions between students and with the course instructor</td>
<td>• Discussion boards • Chats</td>
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<td><strong>External Web-Based Sources:</strong> 7/23 (30%)</td>
<td>Outside sources of information, audio, and video materials</td>
<td>• Videos • Links to external sources</td>
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<tr>
<td><strong>Instructional Software:</strong> 7/23 (30%)</td>
<td>Subject-specific software systems with instructional videos, problem sets, and assessments that provides feedback</td>
<td>• MyMathLab • Mastering Chemistry • SAM • WebAssign</td>
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<tr>
<td>Purpose Categories</td>
<td>Definition</td>
<td>Types of Tools</td>
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| Content Delivery   | Provide and/or reinforce content | • Archivable presentations  
                      |                         | • Instructional software  
                      |                         | • External web-based sources |
| Practice and Application | Allow students to practice key concepts and apply their learning to new situations | • Instructional software  
                      |                         | • Communication forums |
| Communication and Feedback | Allow for communication between students and instructor including a means for Q&A, feedback, and/or grades | • Communication forums  
                      |                         | • Archivable presentations  
                      |                         | • Instructional software |
| Assessment         | Assessing student learning | • Instructional software  
                      |                         | • Communication forums |
Finding

• Online instructors showed significant variability in their ability to purposefully integrate interactive technologies in service of pedagogical goals.

• We attribute the variation to:
  • teaching philosophy,
  • instructor preparedness, and
  • purposeful execution.
Teaching Philosophy

• Beliefs about the roles and responsibilities of online instructors and what is pedagogically feasible in the online space.

• Variation across three primary areas:
  • Extent to which online courses should replicate face-to-face environment,
  • Suitability of technology for content area, and
  • Appropriate role of online instructor.
Instructor Preparedness

• Formal and informal training that online instructors had experienced and the extent to which that learning is reflected in online practice.

• Although most instructors had received some training, such professional learning opportunities were only the first step towards mastery.

“I’m not real familiar with how they [setting up groups within Blackboard] work, so I’m sure there is more I could do in that regard, [but]…I just can’t get my head around that.”
Purposeful Execution

• Use of interactive technologies in service of specific pedagogical goals.

• Interactive technologies employed in ways that reinforced learning objectives across purpose categories:
  • Content delivery through *audio/video-recorded lectures with slides*;
  • Practice and application, communication and feedback, and assessment through *instructional software*; and
  • Communication and feedback through *chat sessions*.

• Few online instructors made connections between technology use and instructional goals consistently; likely hampered by lack of pedagogical training.
Finding

- Students reported more positive experiences in online courses that diversified instructional activities through the integration of various technologies.

- We attribute this to:
  - instructor presence
  - multiple means of engagement, and
  - clear connections between technologies and learning objectives.
Instructor Presence

- Audio and video recordings, chat sessions, and monitored instructional software were cited by students and instructors as ways to establish active *instructor presence*.

- Reflects instructors’ commitment to teaching as evidenced by sustained communication, accessibility, approachability, and proactive instructional support practices.

  "I really like that because even though it’s an online class, we still have that somewhat of a face-to-face feel like we know who our professor is...It seems like he really enjoys teaching."

- Students valued interactions with instructors more than with other students.
Multiple Means of Engagement

• Students valued multiple ways to engage course content.

“The instructor provided] a video where she goes over and discusses with you every point that’s in the assignment for the week…It really can clarify a lot of issues that you don’t get from reading everything…It’s really made it a lot easier to follow the class.”

• Many students recommended inclusion of interactive technologies in online courses that were strictly text-based.
Clear Connections to Learning Objectives

• Students were most satisfied with interactive technologies that had clear instructional purposes.

• Without explicit guidance on how interactive technologies supported instructional goals, some students overlooked these activities or resources as optional or unnecessary.

• EX: Reports on discussion board activities received mixed responses, typically regarding the utility of responding to other students’ posts
Conclusions

• Few online instructors optimize use of interactive technologies in ways that enhance students’ reported learning experiences.
  • Static content delivery that relied heavily on text-based materials and activities dominated and was less engaging for students.
  • Failure to clearly articulate the connection between technology-mediated activities and learning objectives potentially undermined relevance for students.

• Effective use of interactive technologies requires significant training and practice.
  • Existing professional learning resources appear promising but lack effective delivery mechanisms for instructors.