Examining interaction within STEM Web Broadcasts

Conference or Workshop Item

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Examining Interactions in STEM Web Broadcasts
Venetia Brown, Trevor Collins, Nick Braithwaite

Aim
To investigate the impact of embedded interactive tools (widgets) in live web-broadcasts on learning.

Context

Inquiry and experiential learning are key pedagogical methods in STEM curricula. As part of the OU’s supported opening learning approach, lab-based broadcasts provide online and distance students an opportunity to observe and engage in practical science demonstrations through synchronous (real-time) methods.

Interaction is crucial to maximise student learning. Empirical data (Martin, Parker & Deale, 2012; Kim, Kim & Han, 2013) suggest that synchronous media:

- Add value to learning through real time discussions
- Provide instantaneous feedback
- Enhance student connectedness, interest and engagement

There remains a gap in the type of pedagogical strategies that promote interactivity in synchronous environments.

Lab-based Broadcasts vs. Online Tutorials

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Stadium Live Lab-Based Broadcasts</th>
<th>Adobe Connect Online Tutorials</th>
</tr>
</thead>
<tbody>
<tr>
<td>~ 10 - ~ 100</td>
<td>lab-bench experiment field</td>
<td>whiteboard shared screen</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Focus</th>
<th>pre-prepared Q&amp;A widgets, chat box</th>
<th>on-screen activities, polling, raise hand, applaud, chat box, microphone</th>
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</thead>
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<table>
<thead>
<tr>
<th>Interactive Techniques</th>
<th>Situated presentation</th>
<th>Dialogue</th>
</tr>
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<table>
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<tr>
<th>Instructional Strategy</th>
<th>Curiosity presentation</th>
<th>Support isolation learning</th>
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<tr>
<th>Motivational Factors</th>
<th>Excitement companionship</th>
<th>Support isolation learning</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Technology</th>
<th>Multiple HDI cameras, video mixing desk</th>
<th>Restricted camera on device</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Logistics</th>
<th>Production team, presenter and assistant</th>
<th>Tutor and assistant</th>
</tr>
</thead>
</table>

Approach

Observations
- Teaching practice
- Video content analysis

Surveys
- Stakeholders attitudes & perceptions

Tests
- Instructional strategies
- Pre test/post test

Draft Research Questions

The study will address the following areas:

i) Ways collaboration happens between students and presenters.

ii) Adaptations to encourage equality of knowledge development.

iii) Perceptions of stakeholders (i.e. students, lecturers and production teams) on live web-broadcasts.

Figure 1. Schemata of live-stream web-broadcast

MLA
Kim, S., Kim, H., & Han, S. (2013) A development of learning widget on m-learning and e-learning environments. Behaviour & Information Technology, 32 (2) 190-202