Session 103
Extending LRSs and the xAPI for Event-driven Blended and Adaptive Learning
Shrikant Pattathil, Mahesh Kharade
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About Us

Harbinger Group is a leading provider of interactive solutions and technology services to organizations across the globe.

Software Product Development

Interactive Courseware Development

Shrikant Pattathil
President, Harbinger Systems

Mahesh Kumar Kharade
Architect, Harbinger Systems
Adaptive Learning

Computers adapt the presentation of educational material according to students' learning needs, as indicated by their responses to questions and tasks.
Adaptive Learning Workflow

- **On-line Self-paced Learning**

  - **Linear e-learning**
    - Same fixed Content to all users

  - **Micro-adaptive**
    - Adjust sequence based on individual’s actions in real time

  - **Macro-adaptive**
    - Pre-select based on pre-test or history ‘Test out’ of courses
    - Select context / style / media

- **Rule-based systems**
  - Detailed pre-programming: ‘If ... then...’

- **Sequence Algorithm-based**
  - Algorithm calculates sequence dynamically

- **Preference-based**
  - Adapts to style or medium preferred by each learner

- **Retention / Memory management**
  - Re-lecture courses / spaced or prioritizes repetition

- **Integrated Adaptive learning Networks**

- **Test-driven**
  - Based on automated test sequencing (e.g., IKT)

Source: CogBooks™ Adaptive Learning
Learning sources

- Interactive Video Lessons
- Assessments
  - Placement Tests
  - Interactive Quizzes
  - Final Assessments
- eBooks
- On-location Videos
Adaptive Learning Workflow – Case I

1. User Profile Preferences
2. Placement Test
3. Interactive Video Lessons
4. Final Assessment
5. Supplementary Video
6. Yes or No based on Final Assessment
   - Yes: Pass
   - No: Personalized

The workflow integrates with LRS (Learning Record Store) via xAPI to track and manage learning activities.
Adaptive Learning Workflow – Case II

Interactive Video Lessons → Quiz

Companion Reader (eBook) → Interactive Video Lessons

Short Story (eBook) → Quiz

xAPI

LRS
Solution

- Need for blended and adaptive learning
  
  Online platform
  - Cross content navigation
  - Learner activity tracking using xAPIs
  - Adaptive learning workflows

- Mobile App
  - Primary delivery mechanism
  - Mobile content player and tracking
  - Adaptive workflows using xAPI tracking and notifications
Dashboard
Start With a Placement Test
Placement Test

“Placement Test” for the course
“What is Lorem Ipsum?: Mastery in Advance Level...”
This will help you to understand from which part of the course you can start with...

Start Test  
Skip Test
MCQs

Q. Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta.

1. True

2. False
MCQs

Q. Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta.

1. True

2. False

Skip Question

Quest. 1 of 4
Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta.
Take learner to next learning activity
The European languages are

Adaptive Learning: Learner View

User

Placement 1
- Vid. Lesson 1
  - On Loc V1
  - On Loc V2
  - On Loc V3

Placement 2
- Vid. Lesson 2
  - On Loc V1
  - On Loc V2

Placement 3
- Vid. Lesson 3
  - On Loc V1
  - On Loc V2
  - On Loc V3
  - On Loc V4

e-Book Lesson
- On Loc V1
- On Loc V2
- On Loc V3
- On Loc V4
Adaptive Learning: Learner View
Using xAPI: Interactive Video Tracking

DEMO
Application Architecture

Session 103 – Extending LRSs and the xAPI for Event-driven Blended-and Adaptive Learning | Speakers: Shrikant Pattathil, Mahesh Kharade
## Using xAPI: Interactive Video Tracking

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced</td>
<td>&lt;&lt;ACTOR&gt;&gt; experienced Employee Engagement Video Lesson&lt;br&gt;Captured when the first time user views the video</td>
</tr>
<tr>
<td>Resumed</td>
<td>&lt;&lt;ACTOR&gt;&gt; resumed Employee Engagement Video Lesson&lt;br&gt;Captured on subsequent views of the video by the user</td>
</tr>
<tr>
<td>Watched</td>
<td>&lt;&lt;ACTOR&gt;&gt; watched Employee Engagement Video&lt;br&gt;Captured when user exits the video along with time from where user exits the video</td>
</tr>
</tbody>
</table>
Using xAPI: Interactive Video Tracking

- **Launched**: `<ACTOR> launched Link1
  Captured when user access any link within the video`

- **Viewed**: `<ACTOR> viewed Introduction Section
  Captured when user views the section of the video`

- **Interacted**: `<ACTOR> interacted Interactive Element
  Captured when user interacts with the interactive element (like web-object, embedded video) within the video`
Using xAPI: Quiz Tracking

**Attempted**

<ACTOR> attempted Quiz
Captured when user attempts the quiz

**Completed**

<ACTOR> completed Quiz
Captures score of the quiz

**Passed/ Failed**

<ACTOR> passed/failed Quiz
Captured when user pass or fail the quiz
## Using xAPI: eBook Tracking

<table>
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<tr>
<th>Event</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Launched</td>
<td><strong>&lt;&lt;ACTOR&gt;&gt; launched reader/story &lt;&lt;name&gt;&gt;</strong> captured when user access eBook</td>
</tr>
<tr>
<td>Progressed</td>
<td><strong>&lt;&lt;ACTOR&gt;&gt; progressed &lt;&lt;%&gt;&gt; in reader/story &lt;&lt;name&gt;&gt;</strong> captured every time user moves from one page to next</td>
</tr>
</tbody>
</table>
Analytics
Capturing Video Analytics using xAPI
Capturing Video Analytics using xAPI

Video Engagement Analytics:
- Link2 40%
- Link3 15%
- Link1 15%
- Link4 15%
Total Views = 80

Attempted | Passed | Failed
- Attempted 32%
- Passed 45%
- Failed 23%
Total Users = 80
Engagement Analytics using xAPI

DEMO
Thank You

Email us:
shrikant@harbingergroup.com
maheshkumar@harbingergroup.com