The supporting role of technology in learning-oriented assessment

Erik Voss, Teachers College, Columbia University
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Outline

1. Learning-oriented assessment (LOA) Frameworks
2. Technology in an LOA Framework
3. Applications of technology supporting LOA
4. Conclusion
Teaching and assessment have been viewed as separate entities. LOA seeks to support learning through assessment practices.
Learning Oriented Assessment

The primary focus of assessment “is on the potential to develop productive student learning processes.” (Carless, 2015, p. 964)

“The challenge is to link all types of language assessment into a coherent model that values learning processes and learning outcomes.” (Saville, 2021, p. 13)
Components of Learning-Oriented Assessment (Keppell & Carless, 2006)

1. Assessment tasks as learning tasks
2. Student involvement in assessment processes
3. Forward-looking feedback

Working Framework of LOA (Purpura, 2021; Purpura & Turner, 2018)

1. **Contextual Dimension** - the sociocultural context in which the test occurs (real-world setting)

2. **Proficiency Dimension** - concerned with knowledge representation

3. **Elicitation Dimension** - task design, delivery, administration, and scoring

4. **Socio-cognitive Dimension** - use of cognitive resources and its functionality reason through the problem

5. **Instructional Dimension** - role of instructional information; input is meant to be processed, remembered, and used; scaffolded feedback

6. **Affective Dimension** - consideration of positive and negative social-emotional, psychological, and attitudinal dispositions; socially, cognitively, and emotionally engaging

7. **Social-Interactional Dimension** - social practices reflect the norms, preferences, assumptions, and expectations of talk-in-interaction
Ecosystem of Learning (Saville, 2021, p.27)
Pedagogical Knowledge

Assessment Knowledge

Content (Language) Knowledge

Missing

Technological Knowledge

Framework Components
Learning-Oriented Assessment (LOA) Knowledge [PAK]

Pedagogical & Assessment Knowledge

Content (Language) Knowledge [CK]

Technological Knowledge [TK]

Missing
So, how can digital technology support teachers’ implementation of LOA?

“The computer itself does not have a philosophy of teaching and learning. However, the professionals who develop CALL and conduct research of learner’s use of CALL do.” (Chapelle & Jamieson 2008, p. 3)

“Pedagogy should always drive technology, never the other way around” (Bergmann & Sams, 2012, p. 21)

Technology supports Content and Pedagogy/Assessment
T[PA]CK Application

Step 1: Start with your learning objectives (CK)

Step 2: Select the content for the lesson (CK)

Step 3: Decide how the content will be taught and assessed ([PA]K)

Step 4: Select appropriate technology to support pedagogy and assessment. (TK)

Step 5: Implement and **evaluate** your plan (T[PA]CK)
<table>
<thead>
<tr>
<th>T[PA]CK Domain</th>
<th>Intended Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA - (LOA) Knowledge (Pedagogical &amp; Assessment Knowledge)</td>
<td>The teacher has sufficient knowledge in pedagogy and assessment literacy to develop assessment tasks as learning tasks.</td>
</tr>
<tr>
<td>Content Knowledge</td>
<td>The teacher has sufficient knowledge in the content (target domain) to design LOA tasks.</td>
</tr>
<tr>
<td>Technological Knowledge</td>
<td>The teacher is able to solve technical problems, and identify appropriate technology, and understand how technology works.</td>
</tr>
<tr>
<td>PA (LOA) - Content Knowledge</td>
<td>The teacher has sufficient knowledge to develop assessment tasks as learning tasks with appropriate content from the target domain (to meet learning objectives).</td>
</tr>
<tr>
<td>Technological Content Knowledge</td>
<td>The teacher has sufficient knowledge to develop &amp; deliver the content through appropriate technology.</td>
</tr>
<tr>
<td>Technological PA (LOA) Knowledge</td>
<td>The teacher has sufficient knowledge to design tasks through technology that provide quality feedback and promote learning.</td>
</tr>
<tr>
<td>Technological PA (LOA) Content Knowledge</td>
<td>The teacher has sufficient knowledge to design, deliver and evaluate tasks through technology with appropriate content from the target domain that provide feedback and promotes learning.</td>
</tr>
</tbody>
</table>

• How does technology use change the construct?
Example 1
Development & Delivery

Listening Comprehension Assignment

Students are asked to watch a video about a topic at an appropriate p-level related to the learning objectives.

Decide how to deliver the video on laptop or mobile devices.

The instructor has developed questions to evaluate students’ comprehension of the video, provide interaction and immediate feedback, and keep track of students’ responses and scores.

Select authoring software to add interaction and immediate feedback keep track of students responses and scores.
Implement and evaluate Interactive Video Software
Tasks should be developed according to the specific linguistic characteristics and abilities that L2 learners are expected to know or need to know (Turner & Purpura, 2016)

- Identify linguistic characteristics in the target domain (Biber, 2006) for tasks
- Identify high-frequency academic collocations to develop items for a computer-based test of collocational ability (Voss, 2012)
- Identify level-appropriate reading passages for instruction and assessment (Metametrics, 2009)
- Develop materials to assist learners in learning about hedging in academic writing (Voss, 2020)

How can technology help identify linguistic characteristics?
The teacher has the technical knowledge to identify the frequency of vocabulary in a text using a vocabulary profiler.

<table>
<thead>
<tr>
<th>K1 Words (1-1000):</th>
<th>78</th>
<th>92</th>
<th>213</th>
<th>66.98%</th>
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<tbody>
<tr>
<td>Function:</td>
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<td>...</td>
<td>(136)</td>
<td>(43.40%)</td>
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<tr>
<td>Content:</td>
<td>...</td>
<td>...</td>
<td>(75)</td>
<td>(23.58%)</td>
</tr>
<tr>
<td>&gt; Anglo-Sax</td>
<td>...</td>
<td>...</td>
<td>(32)</td>
<td>(10.06%)</td>
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<tr>
<td>K2 Words (1001-2000):</td>
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<td>9</td>
<td>12</td>
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<td>...</td>
<td>(1)</td>
<td>(0.31%)</td>
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<tr>
<td>1k+2k</td>
<td>...</td>
<td>...</td>
<td>(70.75%)</td>
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<table>
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<tr>
<th>AWL Words:</th>
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<tbody>
<tr>
<td>&gt; Anglo-Sax</td>
<td>...</td>
<td>...</td>
<td>(4)</td>
<td>(1.26%)</td>
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</table>

<table>
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<tr>
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<th>15</th>
<th>26</th>
<th>8.18%</th>
</tr>
</thead>
<tbody>
<tr>
<td>124+?</td>
<td>158</td>
<td>318</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

The teacher has the technical knowledge to identify the frequency of vocabulary in a text using a vocabulary profiler.
The teacher has the technical knowledge to 1) identify language patterns and 2) distribution of lexical items in a reference corpus.
1. The teacher is leading a discussion on a topic in a physical classroom and students do not have their own devices (laptop, tablet or phone).

2. The teacher would like to get immediate feedback about students’ understanding of the topic by eliciting student responses and collecting individual responses.

How can technology support collection of individual responses?
The teacher has the technological knowledge to:

1) print supplemental paper codes and
2) use a mobile device to collect individual student responses in a physical classroom with limited technology.

https://www.flickr.com/photos/mike_mccormick/19343044725/in/photostream/
Example 4
Remote Proctoring

The teacher needs to administer an assessment to students at home during a pandemic (and after).

How can technology support language assessment administration in remote environments?

2. Video Conferencing Software

3. AI-based Proctoring Software
1. **The teacher** has the technical knowledge to implement and evaluate appropriate software for remote proctoring.

2. **The student** has the technical knowledge to interact with the software (e.g., allow camera and microphone permissions, troubleshoot Wi-Fi issues, etc.).

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Honorlock proctoring software

Purpura, Davoodifard, & Voss (2021, p. 49)
Technological Knowledge

Teacher T-Knowledge

Student T-Knowledge

Construct-related T-knowledge

Construct-unrelated T-knowledge
What technological knowledge is required to support language learning and assessment with emerging technologies?

Immersive Environments: Augmented Reality
Technical knowledge should be part of the LOA framework.

|------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------|
| LOA Knowledge (Pedagogical & Assessment Knowledge, PA) | • Assessment tasks as learning tasks  
• Student involvement in assessment processes  
• Forward-looking feedback | • Elicitation Dimension  
• Instructional Dimension  
• Socio-cognitive Dimension  
• Affective Dimension | • Education  
• Assessment  
• Learner |
| Content Knowledge (CK) | • Proficiency Dimension | | • Curriculum, syllabus, content |
| ConteXtual Knowledge (XK) | • Social-Interactional Dimension  
• Contextual Dimension | | • Social world |
| Technological Knowledge (TK) | Technology Literacy  
• Teacher Knowledge  
• Student Knowledge  
• Construct-related  
• Construct-unrelated | Technology Literacy  
• Teacher Knowledge  
• Student Knowledge  
• Construct-related  
• Construct-unrelated | Technology Literacy  
• Teacher Knowledge  
• Student Knowledge  
• Construct-related  
• Construct-unrelated |
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