Topic-Oriented Open Learning platforms

Topic-specialisation as the key to widespread OER adoption?

----

A tale of two initiatives from the Netherlands
AnatomyTOOL.org

ihatestatistics.com
If you take away only one thing:

To drive **OER adoption**, **communities of practice** are key. **Topic-oriented technology** can help foster them.
1186+

OER repos,

110 HE & updated

Santos-Hermosa et al., Repositories of Open Educational Resources: An Assessment of Reuse and Educational Aspects (2017)
Mainstream OER Adoption still low

OER are in the Chasm

Source: https://blog.prototypr.io/design-for-crossing-the-chasm-1c4d4c68a3f1
why?
<table>
<thead>
<tr>
<th>Challenge</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overcoming technology problems when downloading resources</td>
<td>34.9%</td>
</tr>
<tr>
<td>Knowing where to find resources</td>
<td>53.3%</td>
</tr>
<tr>
<td>Finding suitable resources in my subject area</td>
<td>58.2%</td>
</tr>
<tr>
<td>Finding resources of sufficiently high-quality</td>
<td>56.1%</td>
</tr>
<tr>
<td>Finding resources that are up-to-date</td>
<td>39.3%</td>
</tr>
<tr>
<td>Finding resources relevant to my local context</td>
<td>37.2%</td>
</tr>
<tr>
<td>Getting managers to accept OER use</td>
<td>20.9%</td>
</tr>
<tr>
<td>Not being skilled to edit resources</td>
<td>18.2%</td>
</tr>
<tr>
<td>Not knowing whether I have permission to use a resource</td>
<td>28.2%</td>
</tr>
<tr>
<td>Not having enough time to look for suitable resources</td>
<td>47.8%</td>
</tr>
<tr>
<td>Not having connections with OER-using peers</td>
<td>22.7%</td>
</tr>
<tr>
<td>Not knowing how to use resources</td>
<td>9.5%</td>
</tr>
<tr>
<td>Lacking institutional support for my use of OER</td>
<td>32.5%</td>
</tr>
<tr>
<td>Not having enough opportunity to experiment</td>
<td>15.6%</td>
</tr>
<tr>
<td>Resources not aligned with standards</td>
<td>12.1%</td>
</tr>
</tbody>
</table>

Find Quality

Not enough time

OERRH Data Report 2013-2015: Lecturers
Why would topic-oriented help?
Generic platforms

Domain specific platforms

?
Why not do the same in education?
1. **Topic-Oriented:**
   - Domain specific **Content**
   - Domain specific **Presentation/ organisation**
   - Domain specific **Taxonomy** *(Domain Model)*
   - Domain specific **Tools**

2. **Open**

3. **Learning focused**
We call these platforms: TOOLS

Topic-Oriented Open Learning platforms
Different fields
Same structure
Anatomy by students
International contest

Who creates the most remarkable, fun, and best explanatory anatomy poster, video, puzzle or image?

Battle against students from Aachen, Amsterdam, El Paso, Ghent, Maastricht, New York, Prague, and many more!
University Leiden and University Maastricht

Supported by and with contributions of depts: anatomy from:

• Amsterdam, ACTA - Ma-Education Dentistry
• Amsterdam, AMC – UVA (University of Amsterdam)
• Amsterdam, VUMC – VU (Free University)
• Antwerp, University of Antwerp
• Ghent, University of Ghent
• Groningen, UMCG (University Medical Center Groningen)
• The Hague, The Hague University of Applied Sciences, Technology of Physical Motion
• Hasselt, University Hasselt
• Leuven, KU Leuven, campus Kortrijk
• Nijmegen, UMCN – Radboud University (University Medical Center Nijmegen)
• Rotterdam, EUR (Erasmus University Rotterdam)
Domain specific Content

ANATOMY TOOL

Warning: Also non-reviewed material is shown. Click here to see only reviewed content

- Include parts of this structure
- Region
- System
- Topics
- Image collection
- Image Technique
- Image view direction
- Language
- Level
- Institution
Domain specific Presentation/ organisation

System
- Cardiovascular system
- Lymphatic system
- Respiratory system
- Skeletal system
- Articular system
- Muscular system
- Digestive system
- Genital system
- Nervous system
- Endocrine glands

Digestive system
- stomach
- small intestine
- large intestine
- liver

ANATOMY TOOL
- Duodenum

Part of the small intestines arising at the pylorus of the stomach and extending to the duodenojejunal flexure.

Terms:
- Duodenum

The duodenum is the first part of the small intestine. It has a C shape that curves around the head of the pancreas. The small intestine is the primary site where absorption of nutrients from the food occurs.

Two important events occur in the duodenum:
1. The chyme arising from the stomach, which is highly acid due to the stomach's hydrochloric acid, must be neutralised.
2. The bile duct and the pancreatic duct end in the duodenum at the major duodenal papilla. They deposit respectively bile and pancreatic juice in the duodenum. These are of major importance for the digestion of respectively fats and proteins.
Domain specific Presentation/ organisation

- Intro's
- Embryology
- Microscopy
- Dissections
- Radiology
- In practice
<table>
<thead>
<tr>
<th>TAId</th>
<th>English term</th>
<th>Gross type</th>
<th>Entity type</th>
<th>Entity subtype</th>
<th>RELATION</th>
<th>Related structure (name)</th>
<th>Force show</th>
<th>Initial hide</th>
<th>REGION</th>
<th>SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05.8.01.01</td>
<td>liver</td>
<td>ORGA</td>
<td></td>
<td></td>
<td>is component of</td>
<td>A05.0.00.000 alimentary system</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.02</td>
<td>diaphragmatic surface</td>
<td>SPAT area</td>
<td></td>
<td></td>
<td>is feature of</td>
<td>A05.8.01.01 liver</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.03</td>
<td>superior part</td>
<td>SDIV</td>
<td></td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.02 diaphragmatic surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.04</td>
<td>cardiac impression</td>
<td>SPAT depr</td>
<td></td>
<td></td>
<td>is feature of</td>
<td>A05.8.01.03 superior part</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.05</td>
<td>anterior part</td>
<td>SDIV</td>
<td></td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.02 diaphragmatic surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.06</td>
<td>right part</td>
<td>SDIV</td>
<td></td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.02 diaphragmatic surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.07</td>
<td>posterior part</td>
<td>SDIV</td>
<td></td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.02 diaphragmatic surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.08</td>
<td>bare area</td>
<td>SPAT</td>
<td></td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.02 diaphragmatic surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.09</td>
<td>groove for vena cava</td>
<td>SPAT depr</td>
<td></td>
<td></td>
<td>is feature of</td>
<td>A05.8.01.08 bare area</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.10</td>
<td>fissure for ligamentum venosum</td>
<td>SPAT depr</td>
<td></td>
<td></td>
<td>is feature of</td>
<td>A05.8.01.08 bare area</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.11</td>
<td>ligamentum venosum</td>
<td></td>
<td>SPAT area</td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.08 bare area</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.12</td>
<td>visceral surface</td>
<td></td>
<td>SPAT area</td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.08 bare area</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.13</td>
<td>fossa for gallbladder</td>
<td></td>
<td>SPAT area</td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.08 bare area</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.14</td>
<td>fissure for ligamentum teres</td>
<td></td>
<td>SPAT depr</td>
<td></td>
<td>is feature of</td>
<td>A05.8.01.08 visceral surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
<tr>
<td>A05.8.01.15</td>
<td>round ligament of the liver</td>
<td></td>
<td></td>
<td></td>
<td>is subdiv of</td>
<td>A05.8.01.08 visceral surface</td>
<td></td>
<td></td>
<td>AB</td>
<td>DG</td>
</tr>
</tbody>
</table>

**Duodenum**

- **subdivision of**: Intestinum tenue
- **subdivision**: Ampulla duodeni
- Pars ascendens duodeni
- Pars descendens duodeni
- More...

- **component**: Glandulae duodenales
- Papilla duodeni major
- Papilla duodeni minor
- More...

- **feature**: Flexura duodени inferior
Domain specific Tools

- Viewer: based on data of the Visible Human Female Project, Nat. Library of Medicine, USA.
- Virtual Microscopy by Leiden Univ. Med. Center, dept. of Anatomy & Embryology
- 3D model ‘Cardiac Anatomy: external view’ by A. Sieben, dr. Nynke Elzinga, dr Wybe Nieuwland, dr. Jannico Georgiadis, Univ. Med. Centre Groningen is a derivative of BodyParts 3D, licensed CC BY SA 4
  https://sketchfab.com/models/e8e8c6685e82474d8393693fd0646dc7
Learning tools

Teacher can create Learning Path
AnatomyTOOL code = Open source
https://github.com/opgobee/anatomyTOOL
New project: start sept 2018- sept 2020

Open Anatomical Learning Materials

**Partners:**
- AMC (Amsterdam)
- LUMC (Leiden)
- UM (Maastricht)

**Contributors:**
- UMCG (Groningen)
- U. Gent
- U. Hasselt
- U. Leuven
Investigate & catalogue existing anatomical OER

Open up life collection retired medical illustrator

Embryology clips with 3D model

Adult 3D models

Anna Sieben, UMCG en Monique Jongbloed, Marco de Ruiter, LUMC
https://sketchfab.com/models/e8e8c6682e82474dae39393fd0646dc7
Grasple
I HATE STATISTICS
Domain specific Content

Lessons

Imagine you are a doctor with your own practice. For a general overview, you would like to know the mean heart rate of the patients under your care.

Exercises

A variable that describes a measurement where the sequence of the data points are relevant but where the distances between the data points are not meaningful.

This is an ... variable

Your answer

Check my answer

Explainers
Key ingredient: **Domain Model**
Diagnosing misconceptions in statistics
Open

Our Explorables

Teacher created exercises

Currently: Informal sharing
Advocating universities to publish exercises under open license

Our exercises
Exploring how to open our materials as an external organisation while maintaining sustainability
A variable that describes a measurement where the sequence of the data points are relevant but where the distances between the datapoints are not meaningful.

This is a/an ... variable

Your answer

Check my answer
A jeweller sells 6 watches on average on a daily basis. The number of watches sold follows a Poisson distribution.

Compute the probability that exactly 2 watches will be sold tomorrow. Give your answer with three decimals.
Domain specific Tools

This is an exercise to demonstrate how to insert math.

Here I am typing a question, that will involve math:

Type your answer here.

Worked Example

Worked example here

Question at wrong answer

Feedback here
Our goal:

Knowledge should be **openly accessible**
Our goal:

Knowledge should be openly accessible

... how to do this sustainably?
Stats & Math
Editor and practice platform for open exercises for Stats & Math

Open Business Model
Grasple

Will keep creating materials

stats & math

Provides the domain-specific technology

Grasple
TOOL Technology helps forming communities of practice, because:

1. **Domain specific:** work together in creating / reviewing / funding materials
2. Combine **content** and domain specific tools
3. **Complete package** to directly use in your class

Our **“clubhouse”**: feel at home
If you take away only one thing:

To drive **OER adoption**, **communities of practice** are key.

**Topic-oriented technology** can help foster them.
Contact details

anatomyTOOL.org

ihatestatistics.com
grasple.com/oer

Paul Gobee
O.P.Gobee@lumc.nl

Pim Bellinga
pim@ihatestatistics.com
pim@grasple.com