Assessing international students - the role of cognitive load

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Cognitive Load Theory

How much is too much?

- element interactivity
- schemas (novice/expert)
- extraneous load
Evaluate a course
Evaluate a resource
CLT library
Case studies
Plan case study measures
http://cafe.cognitiveload.com.au
Particular course

Previously:
33% of students who handed in everything / 47% of students who didn’t withdraw

FAILED

After CLT Redesign:
• 42% failed exam -> 8% failed exam (same exam)
• Score range 8 -> 84 to 43 -> 91
• Student satisfaction: 3.66 to 4.58 (out of 5)

Collaboration - China

51 students sat exam
3 passed
48 failed

Investigated
Not isolated incident
IT in Australia

IT Student Enrolments

- Domestic
- Overseas
- Total

Year: 2008-2017

Enrolments range from 20,000 to 80,000
Assessment

acronyms
Context info
buzz words
ESL
Unexpected format
OVERLOAD
“Assessment practices are designed to be inclusive, fair and equitable for all students, irrespective of their educational background, entry pathway, mode or place of study.”

“Assessment tasks should be written in simple, clear and plain English”
PRODUCT table... Add a PRODUCT table... will have one more primary key and foreign key... it is not use for easy.

By a SUBSCRIPTION is CLIENT.ID is foreign key used to related the tables.

b. CLIENT.clientID is matching SUBSCRIPTION.clientID

c.
## Step 1: Load caused by language

### Glossary of common terms – 常用术语表

<table>
<thead>
<tr>
<th>Row</th>
<th>行</th>
<th>SET</th>
<th>更新（数据值）</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column</td>
<td>列</td>
<td>DELETE</td>
<td>删除（记录）</td>
</tr>
<tr>
<td>SELECT</td>
<td>选择</td>
<td>DROP</td>
<td>删除（数据库或数据表）</td>
</tr>
<tr>
<td>FROM</td>
<td>从...</td>
<td>SUM</td>
<td>求和</td>
</tr>
<tr>
<td>WHERE</td>
<td>满足条件</td>
<td>COUNT</td>
<td>计数</td>
</tr>
<tr>
<td>ORDER BY</td>
<td>按...排序</td>
<td>AVG</td>
<td>求平均值</td>
</tr>
<tr>
<td>NULL</td>
<td>空值（或空缺）</td>
<td>GROUP BY</td>
<td>按...分组</td>
</tr>
<tr>
<td>TIMESTAMP</td>
<td>时间戳</td>
<td>DISTINCT</td>
<td>不重复数据值</td>
</tr>
<tr>
<td>CASCADE</td>
<td>级联（删除）</td>
<td>JOIN</td>
<td>连接</td>
</tr>
</tbody>
</table>
### Step 1: Load caused by language

<table>
<thead>
<tr>
<th>SQL/Keyword</th>
<th>Chinese Descriptions</th>
<th>English Descriptions</th>
<th>Chinese Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTRICT</td>
<td>约束（删除）</td>
<td>LEFT JOIN</td>
<td>左连接</td>
</tr>
<tr>
<td>INSERT INTO</td>
<td>插入到...</td>
<td>RIGHT JOIN</td>
<td>右连接</td>
</tr>
<tr>
<td>VALUES</td>
<td>赋值</td>
<td>VIEW (database)</td>
<td>视图（数据库）</td>
</tr>
<tr>
<td>LIKE (similarity)</td>
<td>像...（相似性规则）</td>
<td>IN (as in a set)</td>
<td>属于（数据值集合）</td>
</tr>
<tr>
<td>CREATE</td>
<td>创建</td>
<td>sub-query</td>
<td>子查询</td>
</tr>
<tr>
<td>ALTER</td>
<td>修改（数据表）</td>
<td>CONCAT (concatenation)</td>
<td>拼接（字符串拼接）</td>
</tr>
<tr>
<td>CHANGE</td>
<td>修改（数据类型）</td>
<td>DATE_FORMAT</td>
<td>日期格式</td>
</tr>
<tr>
<td>ADD</td>
<td>增添</td>
<td>Concurrent</td>
<td>并发</td>
</tr>
<tr>
<td>UPDATE</td>
<td>更新（记录）</td>
<td>lock</td>
<td>锁</td>
</tr>
</tbody>
</table>
Step 2: Load caused by complexity (divide and conquer)

“Write SQL statements to display the number of clients, and a list of clients, along with the details of any product subscriptions they may have, using a JOIN.”
Becomes:

Write a valid SQL statement to display the number of customers in this database.

Write a valid SQL statement that will display the number of each type of contact made with customers, in April 2018.

Write a valid SQL statement to display the contact details of each customer, along with the date and type of any contact they may have had, using a join.
Write a valid SQL statement to display the number of customers in this database.

Write a valid SQL statement that will display the number of each type of contact made with customers, in April 2018.

Write a valid SQL statement to display the contact details of each customer, along with the date and type of any contact they may have had, using a join.
4. Write a valid SQL statement to display the number of customers in this database: 

   SELECT COUNT (CustomerID) 
   FROM CUSTOMER;

5. Write a valid SQL statement that will display the number of each type of contact made with customers, in April 2014: 

   SELECT FirstName, ContactType, COUNT(*) 
   FROM CONTACT, CUSTOMER 
   WHERE ContactDate LIKE '2014-04' 
   GROUP BY FirstName;

6. Write a valid SQL statement to display the contact details of each customer, along with the date and type of any contact they may have had, using a join: 

   SELECT CUSTOMER.CustomerID, CUSTOMER.FirstName, CUSTOMER.LastName, CUSTOMER.Contact 
   FROM CUSTOMER 
   JOIN CONTACT ON CUSTOMER.CustomerID = CONTACT.CustomerID;
Step 3: Emphasising goals

The following questions use the MEDICINE table:

MEDICINE (MedCode, MedicineName, ShelfLife, Manufacturer, Dosage).

How would you find out the manufacturer of the medicine with MedCode “A123”?

How would you find out the number of medicines per manufacturer?
Step 4: part-worked solutions (uncompleted goal)

Fill in the missing statement [……...] to join the two tables.
SELECT StudentName, AdvisorName

What is the SQL query to get data for customers with an account balance greater than 50?
SELECT *
FROM CUSTOMER
After the resit exam

<table>
<thead>
<tr>
<th></th>
<th>First Exam</th>
<th>Resit exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>Mean score</td>
<td>14 %</td>
<td>64%</td>
</tr>
<tr>
<td>Range</td>
<td>0 - 54</td>
<td>18.5 - 82</td>
</tr>
<tr>
<td>Passed</td>
<td>3</td>
<td>40</td>
</tr>
</tbody>
</table>
Recommendations

• Review assessment
  • Identify goals of assessment
  • Reduce element interactivity where possible
  • Consider ESL students
• Always consider possible overload
Thank You!

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