Seminar Speaker: Jason Tan

Topic: Using card sorting tasks to teach & assess student structuring of conceptual knowledge.

Date: October 16th, 2017

Card Sorting General Guidelines

• Work with people next to you in groups of 2-3.
• Together, sort these cards into groups based on fundamental knowledge of…(provided by instructor).
• **IMPORTANT: THERE IS NO RIGHT OR WRONG WAY TO SORT!**
• The only guidelines are that…
  – each card must belong to only one group
  – your team must have at least 2 & less than 9 groups
• Once you have formed your groups, decide on a name that for each group that reflects why you put them together.

Card Sorting Activity 1: Superhero Card Sort (unframed)

<table>
<thead>
<tr>
<th>Category Name</th>
<th>Cards</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Category Name</th>
<th>Cards</th>
</tr>
</thead>
</table>

**Card Sorting Activity 2: Biology Card Sort (unframed)**
References


2. Woodin T, Carter VC, Fletcher L. Vision and Change in Biology Undergraduate Education, A Call for Action—Initial Responses. CBE Life Sciences Education. 2010;9(2):71-73. Biology “core concepts” established in this paper were used as a starting point for choosing “deep features” for biology card sort.


4. Waldrop MM. Why we are teaching science wrong, and how to make it right. Nature. 2015 Jul 16;523(7560):272-4. Discusses the persistence problem in STEM-fields (most students do not follow through with their initial choice of STEM majors), how active learning is a powerful tool to change this trend, and why implementing active-learning at a wider level faces resistance (culture change).


7. Freeman S, Eddy SL, McDonough M, Smith MK, Okoroafor N, Jordt H, Wenderoth MP. Active learning increases student performance in science, engineering, and mathematics. Proc Natl Acad Sci U S A. 2014 Jun 10;111(23):8410-5. One of the largest meta-analyses performed on active learning and its effects on student learning, over 1,000 citations and counting. Outlines a wide range of benefits purported by active learning, suggests that traditional lecture should be replaced by active learning techniques.


“deck”. Discusses some of the “nitty-gritty” considerations that may help you implement a more successful card sort activity.


11. Eddy SL, Hogan KA. Getting under the hood: how and for whom does increasing course structure work? CBE Life Sci Educ. 2014 Fall;13(3):453-68. Details how to structure your course time to allow for more active-learning in-class. Includes excellent sample templates for guided reading questions to be implemented outside-of-class.


13. Genetics Society of America. PALM (promoting active learning & mentoring). http://www.genetics-gsa.org/education/PALM.shtml. Provides faculty and postdoctoral fellows with resources that allow them to gain hands-on experience and long-term mentorship in bringing evidence-based, effective active learning strategies into their own classrooms.


17. Tanner KD. Promoting Student Metacognition. CBE Life Sciences Education. 2012;11(2):113-120. doi:10.1187/cbe.12-03-0033. Really nice introduction to teaching metacognitive skills to students, details how to explicitly teach and why it’s important.