Collaborative Design: Where PBL and 21st Century Skills Engage Learners

Tonia A. Dousay  
University of Wyoming  
tdousay@uwyo.edu  
@tdousay

Erin M. Irick  
University of Wyoming  
eirick@uwyo.edu
Frameworks

PBL

Collaborative Design

21st Century Skills
P21 Framework
Partnership for 21st Century Learning

Collaborative Design

It's not just what students create, it's what happens when they create together...

(Broderick, 2014)
PBL: Project- or Problem-Based?

<table>
<thead>
<tr>
<th>Project-Based</th>
<th>Problem-Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often multi-subject</td>
<td>Usually single-subject</td>
</tr>
<tr>
<td>Lengthy (weeks to months)</td>
<td>Shorter</td>
</tr>
<tr>
<td>General, variously named steps</td>
<td>Classic, prescribed steps</td>
</tr>
<tr>
<td>Creation of a product or performance</td>
<td>Product may be solution or intangible</td>
</tr>
<tr>
<td>Authentic task &amp; setting</td>
<td>Case studies &amp; fictitious scenarios</td>
</tr>
</tbody>
</table>

(Larmer, 2014)
CONTEXT

College of Agriculture, Family & Consumer Sciences

College of Education, Instructional Technology

Campus Makerspace

University of Wyoming Laboratory School
### Design Elective Matchmaking

<table>
<thead>
<tr>
<th>Name</th>
<th>Lab School / COE / Volunteer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heather</td>
<td>☺☺☺☺☺</td>
</tr>
<tr>
<td>Skylar</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Zeleta</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Alice</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Karen</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Kelly</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>But no Maria</td>
<td>☺☺☺☺</td>
</tr>
</tbody>
</table>

**Ranking System:**
- ☺: Match made in heaven
- ☺?: Interesting match
- ☺☺: Not sure, maybe yes
- ☺☺☺: No match

<table>
<thead>
<tr>
<th>Name</th>
<th>Lab School / COE / Volunteer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sloan</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Vivian</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Jessica</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Slater</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Leilah</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Brenda</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Kellie</td>
<td>☺☺☺☺</td>
</tr>
<tr>
<td>Molly</td>
<td>☺☺☺☺</td>
</tr>
</tbody>
</table>

**Ranking System:**
- ☺: Match made in heaven
- ☺?: Interesting match
- ☺☺: Not sure, maybe yes
- ☺☺☺: No match
Design Elective Lessons

1. African tribes & garment design
2. Multidimensional design
3. Service project
4. Creativity & sketching
5. Museum tour
6. Partnership meeting
Sketch Concept
Results

Designer Experience
- Fun class
- Interesting
- Different
- Challenging
- Would take again
- "Sneaky" way to trick students into math

Interests & Attitudes
- Sources of inspiration
- Hand drawn
- Digital
- Engaged vs. indifferent

Challenges
- At least 3 young designers struggled
- Lack of communication after elective ended
- Scheduling
- Scaffolding
References
