DESIGN LESSONS AND INNOVATIONS FROM LINKED LEARNING: REDESIGNING INSTRUCTION AND PROGRAMS FOR RELEVANCE AND SUCCESS

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Goals for Today’s Session:

• Overview of CLP
• Outline of Linked Learning and AB790
• Introduction of CCCLLI
• Summary of CTL
• Highlight Pasadena City College’s Model
THE CAREER LADDERS PROJECT

fosters educational and career advancement through research, policy initiatives, and direct assistance to community colleges and their partners.
What is Linked Learning?
Assembly Bill 790

Legislation in support of Linked Learning pilot implementations

- Application process to select 20 winning proposals
  - Planning proposals: Just getting started
  - Implementation proposals: Projects under way
  - Mentor Proposals: Experts in Linked Learning
- Winners announced January 2013
- Technical support in 2012-2013, Funding in 2013-2014
CCCLLI: A BRIEF OVERVIEW

Funded by the James Irvine Foundation for 2012-2014

A year of research – case studies of pathways and transcript data
Intensive work with 3 Hub and 5 Partner sites: Community Colleges with their respective High Schools/Districts

Focus is on three industry sectors:

- Arts, Media and Entertainment
- Health Science and Medical Technology
- Public Service

CLP leading and providing technical assistance to the overall initiative
CCCLLI ESSENTIAL ELEMENTS

- K12/Community College Collaboration
- Transitional programming (such as matriculation supports, systemic outreach, etc.)
- Removing barriers of assessment and placement
- Pathway development
- Data-driven decision-making
- Systems change: policy, structural, and program changes at colleges, such as mandating priority registration
Established 1924, 21,500 FTE Students, 24% CTE

43% Hispanic, 22% Asian, 18% White, 5% African American

5,000 Incoming Students Annually – 1600 graduate / transfer

2/3 tested into Developmental math
First Year Pathway at Pasadena City College

- Fully supported transition from High School through First Year
- High School to College Bridge – Design Jam
- Coordinated Outreach, Mentoring, Tutoring
- College Success, English, Math, Electives
- Guaranteed Classes for First Year
Building Pathways, Ensuring Completion

Creativity, Technology, Contextualization, Innovation

High School | PCC Transition | Pathways | Completion | Industry Partners
---|---|---|---|---
Present 2012 | | jams | design technology | Pre-vocational Certificate
Creative Arts, Design & Media Academy
Pasadena High School
| outreach | tracking |
Art, Entertainment & Media Academy
John Muir High School

Year One 2013 | early assessment | outreach | supplemental support | advisory committee
| jams |
| design technology |
| media production |

Year Two 2014 | early assessment | outreach | supplemental support | advisory committee
| jams |
| design technology |
| media production |

**design technology pathway** product design, graphic design, architecture, engineering, fashion, photography, robotics, business
broadcasting, webcasting, directing, producing, editing, animation, web design, visual fx, set design

**media production pathway**
Problem: CTE is behind the curve

- Rapidly Accelerating Technological Change
- Legacy Programs training for obsolete jobs
- High Capital Cost, Small Class Size
- Skills Mismatch for changing technical workplace
- Separation from Academic and Transfer Pathways

...How to learn for jobs that don’t yet exist?
Innovative Solution: Get Ahead of the Curve

- Embrace emergent complexity of careers of the future
- Integrate CTE/Academics for stackable certificates
- Teach Design Thinking for cross-disciplinary learning
- Emphasize transferable skills for life long learning
- Just in time technology/Delayed specialization
- Rapid Prototyping Technology through Problem Based Learning

...Focus on learning processes first, discipline content second
Staying Ahead of the Curve

- Emphasis on STEM, Arts, Entrepreneurship + Sustainability
- Acknowledge needs of whole student
- Integrated internship and workforce transition

PASADENA CITY COLLEGE
PASADENA CITY COLLEGE

Benefits for Workforce Development

- Life long learners maintain professional currency
- Adaptive, flexible learners acquire new skills quickly
- Learners with initiative take advantage of new opportunities
- Entrepreneurs create economic growth and employment
- Meet national long term education and workforce goals

... Stronger economic growth through high-skilled workforce
Meta-Majors

CTE Pathways

Design Technology
Media Arts
Mechatronics

- Broad Range Careers
- High Regional Demand
- High Tech, High Growth, High Pay
- Long Term Career Flexibility
Careers in Arts, Media, Entertainment Sector

Largest traded industry cluster in Los Angeles county
160,000 jobs with high average wage
Continued annual projected growth of 17,000 jobs by 2018

Rapidly accelerating and convergent technology
Web Design, Social Media, Feature/TV, Animation, Interactive, SPFX
Global business model – Production, Distribution
Range of career types – Creative, Business, Technical
Applications – Entertainment, Education, Science

Career Development
Transferable Skills
Media Proficiency
WHAT IS CONTEXTUALIZED TEACHING?

Applied Learning – Practice and Theory
Emphasizing Trans-disciplinary Learning
Engaging an Immersive Environment
Meaningful Experiential Connections
Project Based Real World Experience
Integrated Professional Development
Sculpted Illumination

Lighting Design
Design Fabrication Project
Contextualized English, Math, Speech
Sustainability and Efficiency

Integrated Design Process
-Research + Documentation
-Concepts + Constraints
-Prototyping + Testing
-Written + Verbal Communication

Design project contextualized with:
Math
English
Speech
FAB LAB

DESIGN TECH 101

Sculpted Illumination

SPRING 2013

Problem:
Working collaboratively with a partner, design and fabricate a lamp shade that emphasizes light quality, efficient material usage, and innovative fabrication.

Process:
- Research principles of light science (basic characteristics of light, methods for creating light, phenomenological)
- Research evolutions of light technology and their cultural implications
- Research formal lighting design typologies + materials
- Understand material choices and basic construction parameters (shape of components, method of connections, assembly)
- Choose a shade typology and develop design proposals through sketches, drawings, modeling, and material/labor estimates + calculations.
- Refine design through modifications, mindful of project criteria + metrics
- Analyze the design prototypes and make improvements based on the project criteria + metrics.
- Present fabricated light, design graphics, process, and performance analysis to class.
- Document a self-critique with proposed modifications for future improvements.

ILLUMINATION CRITERIA/PERFORMANCE METRICS

Projects will be evaluated upon the following four categories; each equally weighted:

1. MARKETABILITY
2. AESTHETIC CONSIDERATION
3. MATERIAL/BUDGETARY
4. LIGHT MEASURE
5. RECYCLED CONTENT/SUSTAINABILITY

*Additional 5% credit will be given to those projects that utilize principles of sustainability and a majority of recycled content in the design of the project.

1. MARKETABILITY
This category will be peer-evaluated with the following two metrics scored on a scale of 1-10. The final score will be calculated as a percentage.

Product branding:
Product name, tag line, description (about formal qualities, functional considerations, technical applications)

Concept:
Clearly communicated idea, unique or innovative characteristics (efficiency, ease of assembly, sustainable considerations, style, etc…)

Scoring:

<table>
<thead>
<tr>
<th>Product Branding</th>
<th>Total Score</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>9</td>
<td>17</td>
<td>85%</td>
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2. AESTHETICS
This category will be peer-evaluated with the following three metrics scored on a scale of 1-10. The final score will be calculated as a percentage.

Formal Attributes:
Shape, spatial quality (mass + volume), color, texture, pattern, composition, relationship of components to the whole

Light Quality:
Hard light vs. diffuse light, patterning of light/shadows on the walls and floor, multi-directional illumination (walls/ceilings)

Technical Innovation:
Creative technical problem-solving, efficient fabrication + assembly system, craftsmanship, refined detailing of parts, potential for spin-off product, maximization of the equipment capability for production

Scoring:

<table>
<thead>
<tr>
<th>Formal Attributes</th>
<th>Technical Innovation</th>
<th>Total Score</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>6.5</td>
<td>5</td>
<td>19.5</td>
<td>65%</td>
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**TURBINE**

Jeremy Rose and Jason

Florence-based 2PTUDIO designed this brilliant flat pack sconce lamp, which is made from interlocking plywood pieces. Dubbed ZETA, because of its Z shape, the sconce is made from a single laser-cut sheet of 93 x 30 x 93 mm wood. Functional, lightweight and aesthetic, ZETA is a practical design that can easily adapt to any space. It can also be efficiently and mass-produced shipped, and upon arrival to lucky owner can assemble it in no time.

**CHARACTER**

Radial ribs wrapped with textured surfaces. Cladding moves horizontally from top to bottom.

- Shading sections of light and shadow with gravitated edges. Pattern consistent around the perimeter.

**MATERIALS**

- 1/4" birch plywood
- 0.2" plastic laminate
- 10 gauge aluminized sheet metal
- M4 metric screws

**PRODUCTION DATA**

- Material waste calculation
- Unit design
- Overall packaging dimensions

**COMONENTS**

**PROCESS + PROTOTYPING**

**LIGHT CALCULATIONS**

*Graph showing lumen output and light distribution.*

*Graph showing light intensity across a range of angles.*

**SPECIFICATIONS**

- Lighting: 7W, 3000K, 3000 lumen
- Size: 22.5"H x 16"W x 13"D

**1.** Package sconce components with traveler and travel kit.
**2.** Attach 3 legs to the Z sconce. Thread the cord through the center hole and place sconce attachment on bulb to secure.
**3.** Identify the cord to the fixture. Each kit and color is numbered for easy identification.
Completion:
College Prepared 74.1%
Underprepared 44.2%

Remedial:
Math 24%
English 37%

Career Tech: 64.8%
Fall 2012 - Design Tech Pathway

Total Enrollments: 126
Total Success Rate: 91.3%
Math: 88%
English: 96%
Total Retention Rate: 90%

GPA
- Design Tech: 3.31
- Non – Design Tech: 2.74
- John Muir: 2.60
- Pasadena High: 2.77
**SUCCESSES**

Data figures
Higher retention rates
Persistence in Math/English
Engaging Environment

**CHALLENGES**

Faculty buy-in
Content-centric teaching
Scalability
Institutionalization
Questions, Comments, Feedback?

Thank You!

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