Cognitive Testing of BLS Taxonomy

Daniel Gillman; Daniel Chow; Jean Fox; Ronald Johnson; Brandon Kopp; Karen Kosanovich; William Mockovak; Jesus Ranon; Garrett Schmitt; Thomas Tedone; Clayton Waring

IASSIST 2018 - Montreal, CA

30 May 2018

Taxonomy - Purposes

- User interface for DataFinder dissemination tool
- Consistent tagging for data and documents
- Guide to web site redesign
- Classification for BLS records

Taxonomy – Structure

- Describe time series and other time-dependent data
  - Current focus – aggregated data / not PUMS
- Two main facets
  - Measures – quantitative estimates and statistics
  - Characteristics – i.e., dimensions or classifications
  - At least two paths to each data series
- Very similar to data cube model
  - Dimensions and Measures

Complexity

- Size
  - ~ 100K unique paths
  - Up to seven levels deep
- Language
  - Plain English at top levels
  - Technical terms at bottom levels

First Detailed Level

Measures

Consumer Spending
Earnings, Benefits, and Compensation Costs
Employment and Jobs
Occupational Requirements
People and Families
Prices/Inflation
Production and Productivity
Time Use
Unemployment and Labor Force
Workplace Injuries

Characteristics

Demographics - Characteristics of People
Establishments/Businesses/Firms
Geography
Industry
Occupation
Products and Services
Time
Unemployment and Labor Force Status
Worker Benefits
Worker Characteristics
Worker Injury and Illness

Example
Unemployment Rate for Hispanics

- Measures
  - Unemployment and Labor Force
    - Unemployment Rate
- Characteristics
  - Demographics – Characteristics of People
    - Race/Hispanic
      - Hispanic or Latino Ethnicity
        - ❖Hispanic or Latino

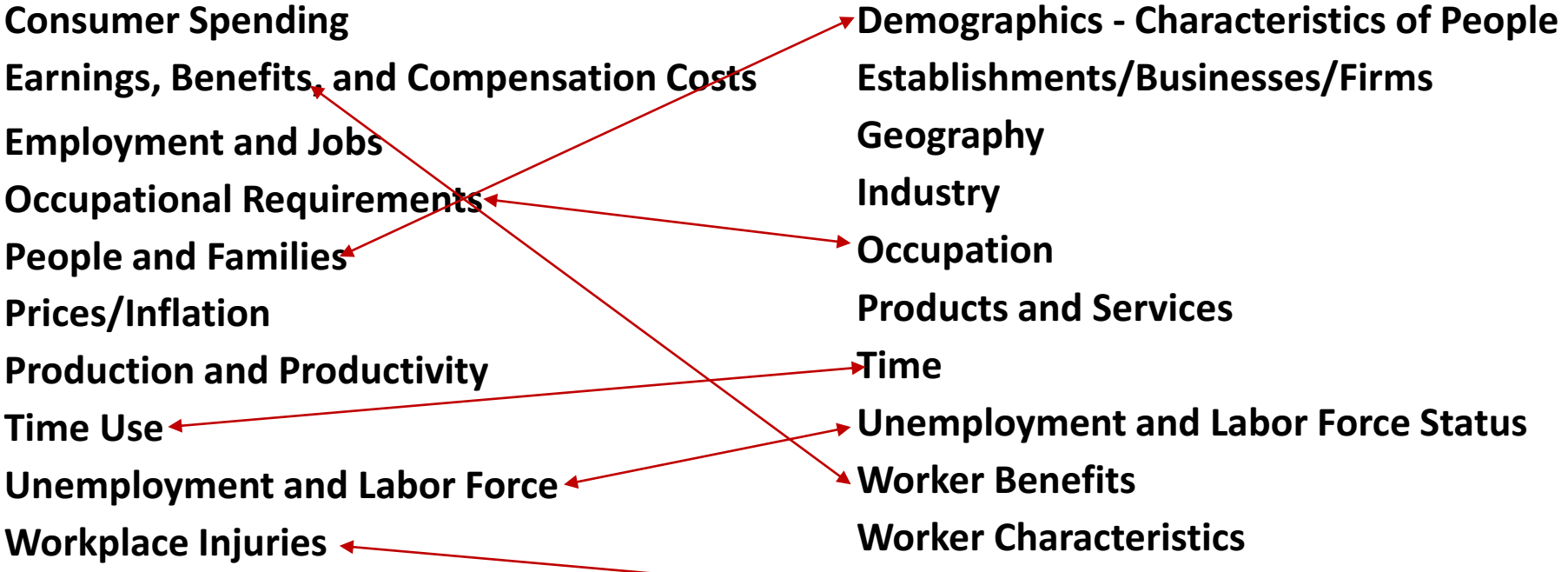
Possible Confusion

Measures

- Consumer Spending
- Earnings, Benefits, and Compensation Costs
- Employment and Jobs
- Occupational Requirements
- People and Families
- Prices/Inflation
- Production and Productivity
- Time Use
- Unemployment and Labor Force
- Workplace Injuries

Characteristics

- Demographics - Characteristics of People
- Establishments/Businesses/Firms
- Geography
- Industry
- Occupation
- Products and Services
- Time
- Unemployment and Labor Force Status
- Worker Benefits
- Worker Characteristics
- Worker Injury and Illness



Specifically

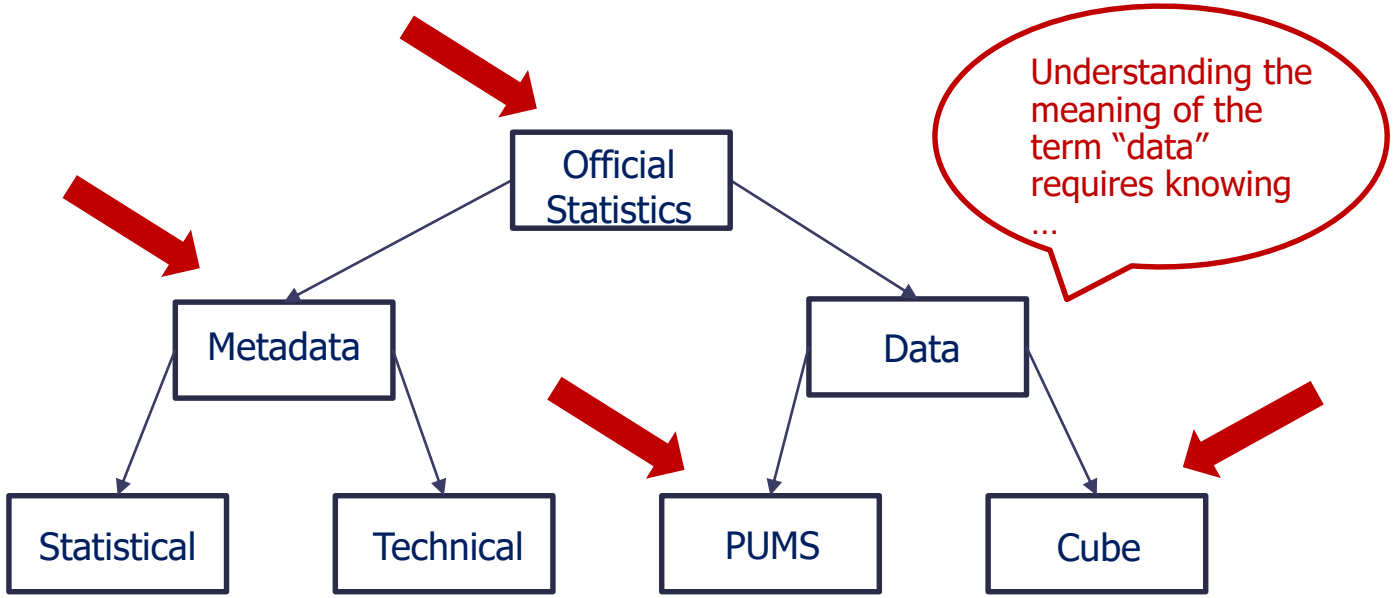
- Example

Measures	Characteristics
Earnings, Benefits, and Compensation	Worker Benefits
– Benefits	– Child and Dependent Care

- Confusing, similar titles in both facets
- Requires better understanding
  - Measure vs Characteristic

Basic Assumption

- Knowledge of a category – based on four things:
  - Names of category, parent, siblings, and children



Motivating Questions

- Can users find information?
  - Can users navigate the taxonomy to find answers?
  - Can users meaningfully distinguish categories ?
- Do users understand each category?
  - What do users expect to see at the next level down?
  - Does it fit within the category above – its parent?
  - Does it fit with its sibling categories?

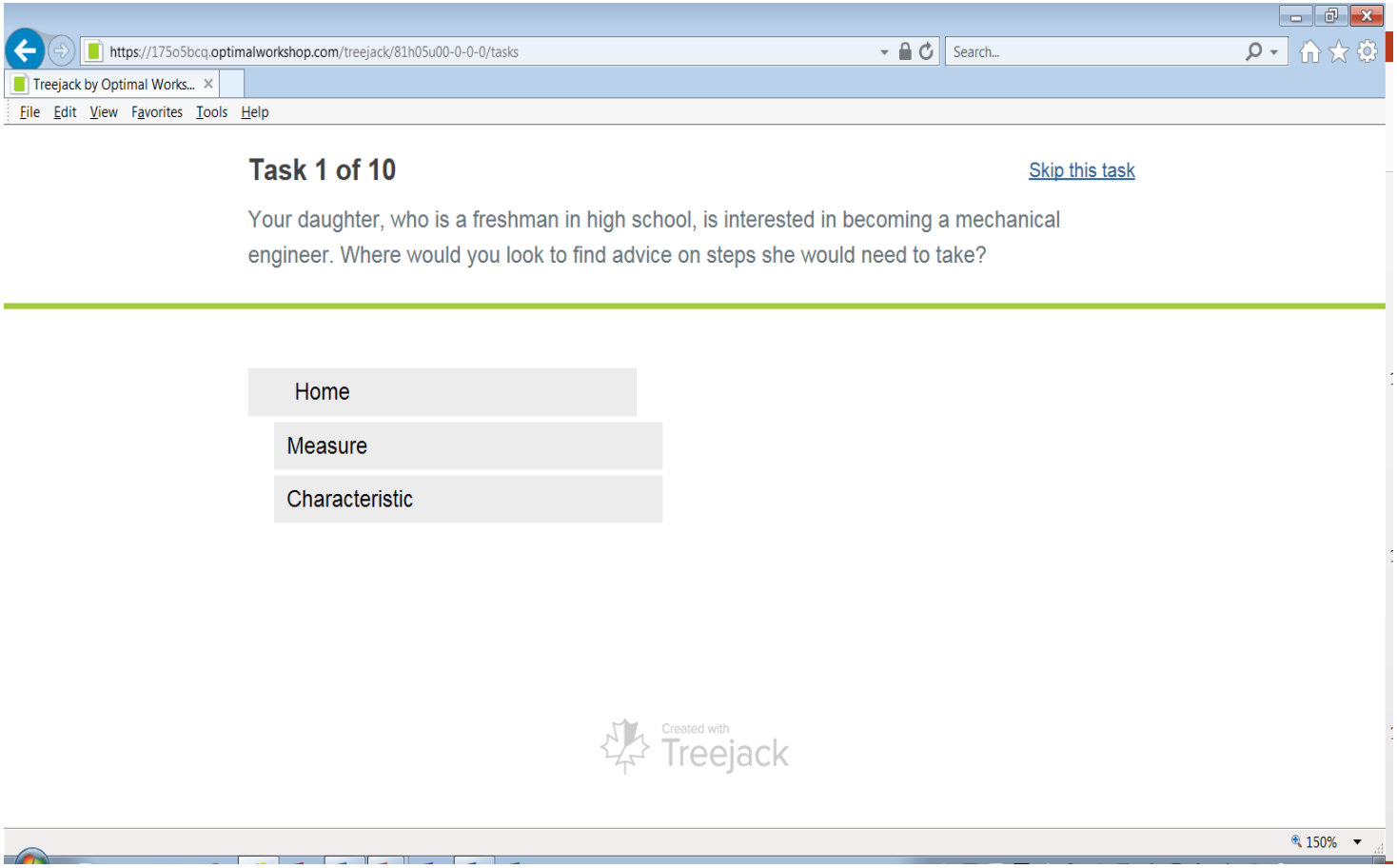
Translate Questions to Test Design

- Can users find information?
  - Test ability to navigate the taxonomy
  - Use tree testing
- Do users understand the categories?
  - Test understandability of taxonomy structure
  - Use card sorting

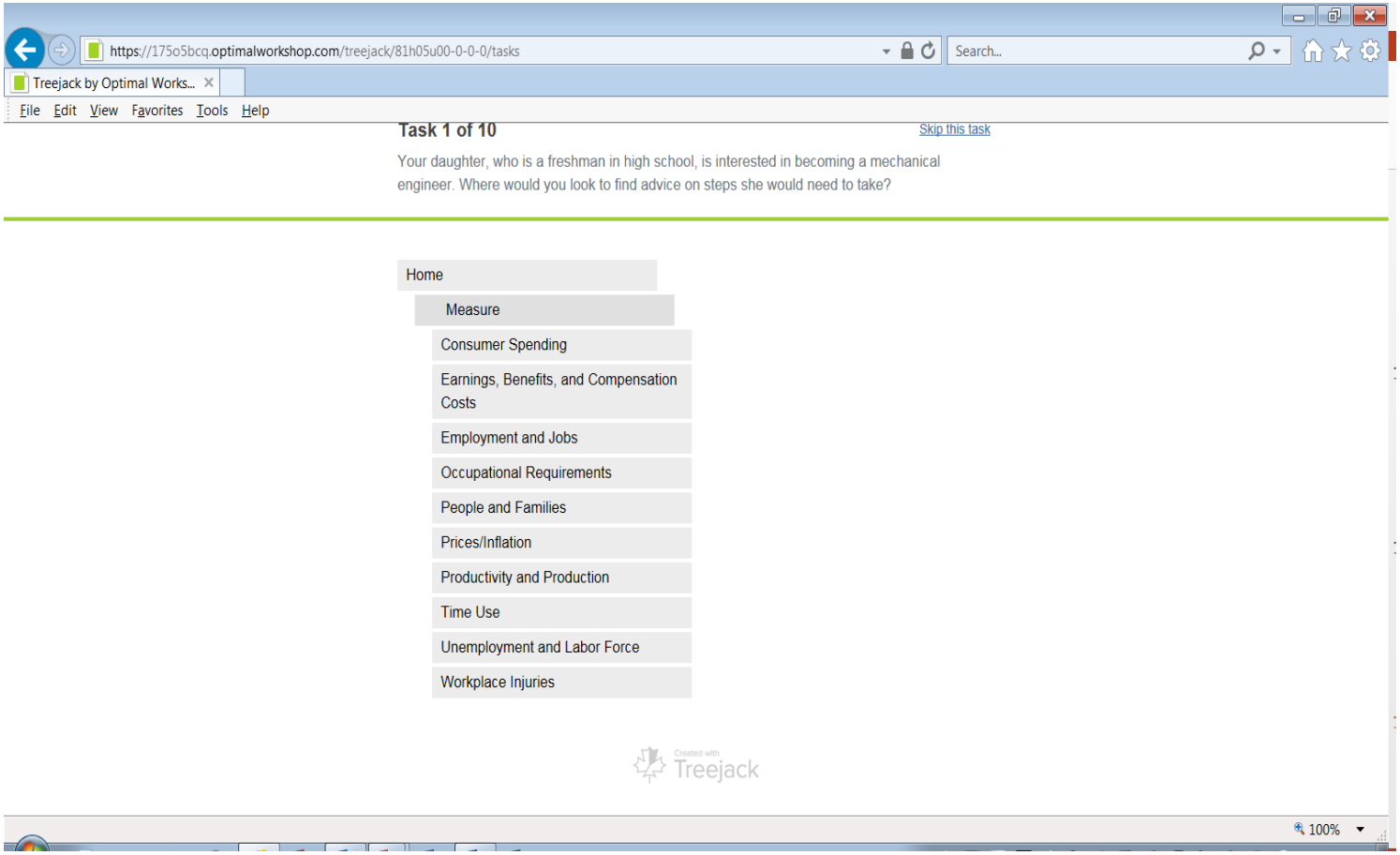
Tree Testing

- Treejack by Optimal Workshop
  - Use to display the taxonomy
    - Top three levels
    - Some 4th level detail available too
    - Navigation
      - Top level presented first
      - Open next level by clicking appropriate box
      - Close a level (and all sub-levels) by clicking the parent
  - Provides record of all clicks

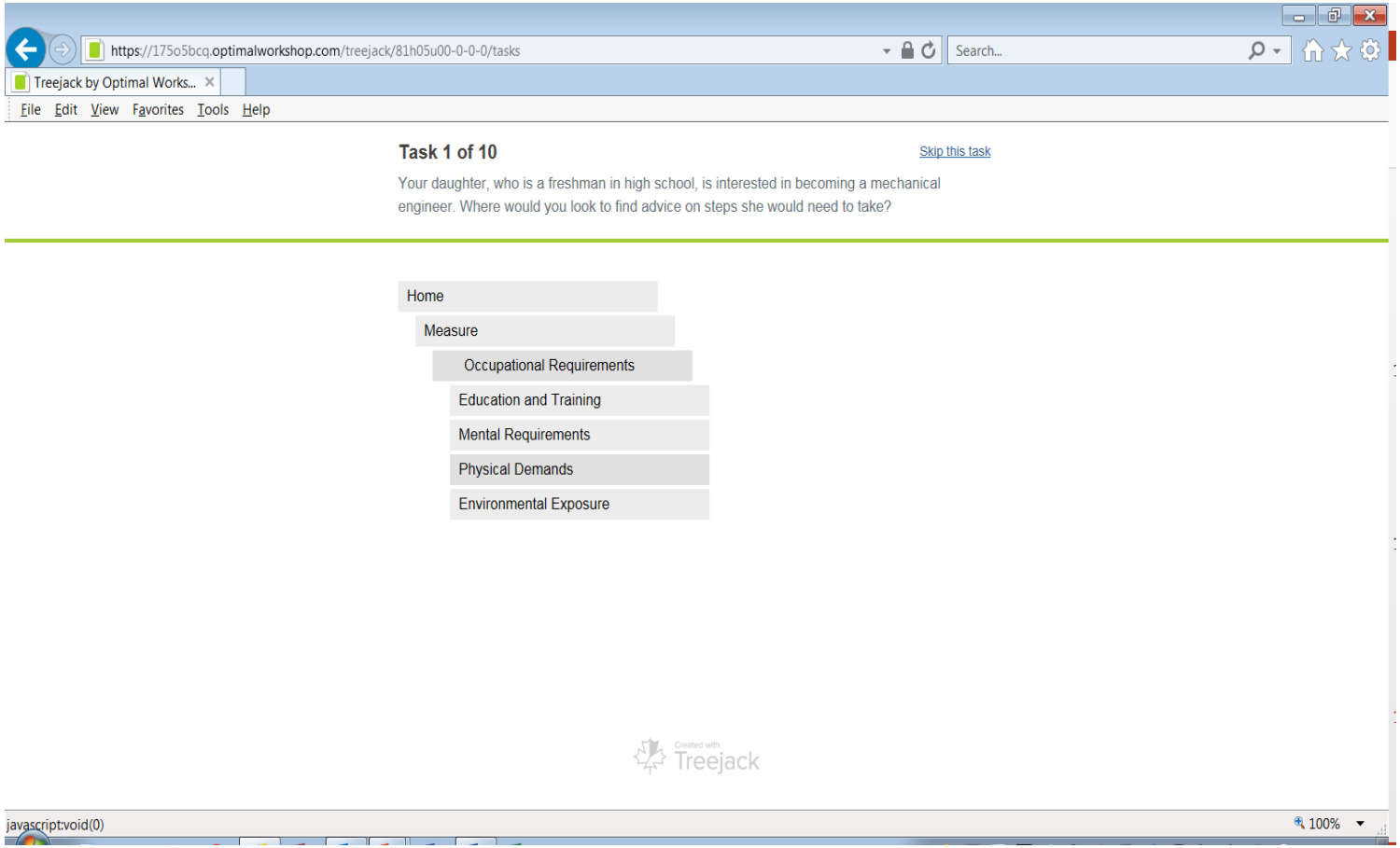
Treejack


https://175o5bcq.optimalworkshop.com/treejack/81h05u00-0-0-0/tasks
Search...
Treejack by Optimal Works...
File Edit View Favorites Tools Help
Task 1 of 10
Skip this task
Your daughter, who is a freshman in high school, is interested in becoming a mechanical engineer. Where would you look to find advice on steps she would need to take?
Home
Measure
Characteristic
Created with Treejack
150%

Treejack


https://175o5bcq.optimalworkshop.com/treejack/81h05u00-0-0-0/tasks
Search...
Treejack by Optimal Works...
File Edit View Favorites Tools Help
Task 1 of 10
Skip this task
Your daughter, who is a freshman in high school, is interested in becoming a mechanical engineer. Where would you look to find advice on steps she would need to take?
Home
Measure
Consumer Spending
Earnings, Benefits, and Compensation Costs
Employment and Jobs
Occupational Requirements
People and Families
Prices/Inflation
Productivity and Production
Time Use
Unemployment and Labor Force
Workplace Injuries
Created with Treejack
100%

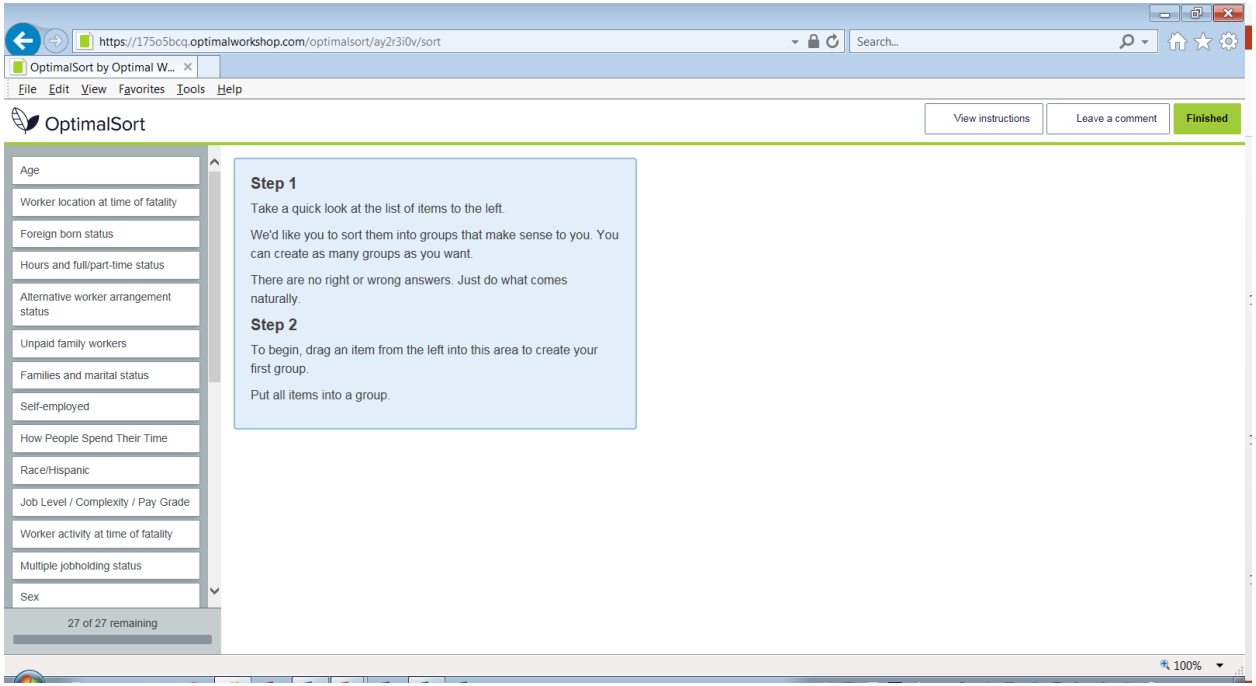
Treejack


https://175o5bcq.optimalworkshop.com/treejack/81h05u00-0-0-0/tasks
Search...
Treejack by Optimal Works...
File Edit View Favorites Tools Help
Task 1 of 10
Skip this task
Your daughter, who is a freshman in high school, is interested in becoming a mechanical engineer. Where would you look to find advice on steps she would need to take?
Home
Measure
Occupational Requirements
Education and Training
Mental Requirements
Physical Demands
Environmental Exposure
Created with Treejack
javascript:void(0)
100%

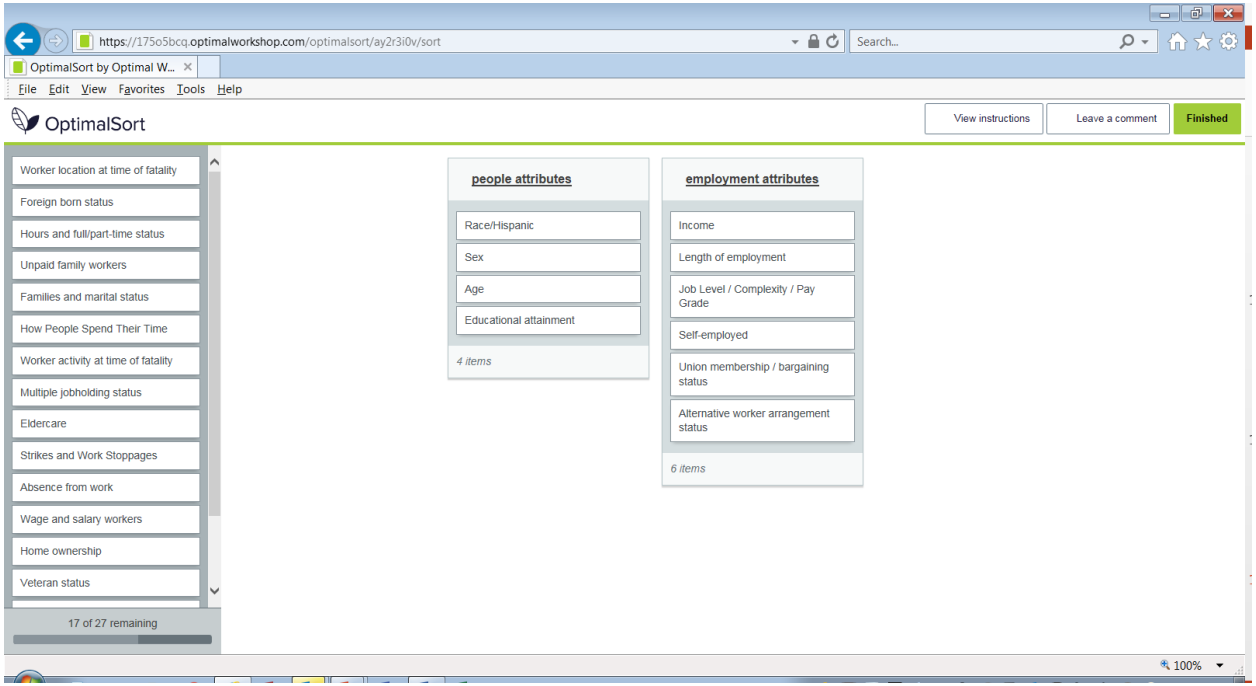
Card Sorting

- OptimalSort by Optimal Workshop
  - Manages card sort task
  - Presents list of categories to sort
    - Drag and drop interface
    - Place each category into a user-defined container
      - Can delete container if desired
    - User creates names for these containers
  - Produces results of each sort
    - Can analyze overall results

OptimalSort



OptimalSort



Case Managment

- BLS cognitive lab
  - BLS volunteers
- Mechanical Turk
  - Online volunteers
- TryMyUI
  - Selected participants
  - Specialized narrated sessions
    - Video and audio recorded

Mechanical Turk

- By Amazon
  - Publishes link for tests to web
  - Attracts people interested in earning money
    - Small payments
  - Contains link to screener questions
    - Pass screening, given link to one (not both) of
      - Treejack
      - OptimalSort
  - System manages visits, including counts, for each kind

TryMyUI

- Example of an online, unmoderated usability testing site
  - Substitute for bringing people into the lab for testing
- Advantages
  - Easy to set up and pretest
  - Competitive pricing ($35/session)
  - Able to select testers using a variety of selection criteria
  - Testers are generally excellent at “talking out loud”
  - Provide very helpful insights, and most explain why they did something
  - Video (up to 20 minutes for basic plan) and audio are provided
    - Very easy to share videos through link provided

Targeted Participants

- Which kinds of BLS data users do we test?
- Persona – kind of person
  - Examples:
    - Private citizen
    - Student
    - Teacher
    - Economist
    - Jobseeker
    - Business owner
    - Policymaker
    - Journalist
    - Advocate
- Choosing personas
  - Likely to need to use BLS data
  - Fairly numerous
- Plus, some BLS volunteers

Testing Scenario

- Available testing resources allow
  - Two personas (students, business owners)
  - Ten navigation tasks
    - Example: "… how many people in the United States want to work but have given up looking for work?"
  - One card sorting task
    - Compare
      - Characteristics of People (13 underlying categories)
      - Worker Characteristics (13 underlying categories)

Location	Recruiting	No. of Participants	Testing Product	Data
In-Lab	BLS Staff	• 6 BLS employees	Treejack AND OptimalSort	• Quantitative Treejack Analysis • Quantitative OptimalSort Analysis • Think Aloud Narration during Testing
Online	BLS Staff	• 24 BLS employees	Treejack AND OptimalSort	• Quantitative Treejack Analysis • Quantitative OptimalSort Analysis
Online	Amazon's Mechanical Turk (mTurk)	• 30 Students • 30 Business Owners	Treejack	• Quantitative Treejack Analysis
Online	Amazon's Mechanical Turk (mTurk)	• 30 Students • 30 Business Owners	OptimalSort	• Quantitative OptimalSort Analysis
Online	TryMyUI	• 3 Students • 3 Business Owners	Treejack	• Quantitative Treejack Analysis • TryMyUI Video with Narration
Online	TryMyUI	• 3 Students • 3 Business Owners	OptimalSort	• Quantitative OptimalSort Analysis • TryMyUI Video with Narration

Results

- Pending
- Next time!

Questions

Contact Information

Dan Gillman
Information Scientist
Office of Survey Methods Research
US Bureau of Labor Statistics
202-691-7523
Gillman.Daniel@BLS.Gov