



A Change in Course: New Hires

Presented by Tom Gallagher
Research & Planning
Wyoming Department of Employment

Researching the Green Economy
Conference

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Des Moines, Iowa

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4/26/2011

1

<http://doe.state.wy.us/LMI>



Administrative Records and Survey Research: A Two-Pronged Approach

Presented at:

The Greening of LMI Forum
Denver, CO
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Presenters:

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Labor Market Information Improvement Grant – The Northern Plains Approach

Brutus:

There is a tide in the affairs of men.
Which, taken at the flood, leads on to fortune
Omitted, all the voyage of their life
Is bound to shallows and miseries.

Julius Caesar, Act 4, scene 3, 218-221





Solicitation for Grant Announcement (SGA)

Research problems are

- Emergent:

- Structures
- Jobs
- Skills

... and cause and effect relationships





SGA Purposes

- To teach workers the skills required in these **emerging** energy ... sectors
- ... assist a **developing** labor exchange structure
- ... Department will consider proposals ... if applicants can offer data demonstrating these are **emerging** industries
- ... the Department is seeking proposals ... to assess economic **activity**
- ... the Department is ... interested in ... the extent to which green jobs are **being created**
- Applicants will propose effective methods for estimating the impact on industry and occupation(s) ... **resulting from implementation** of ... technologies





Large scale technology investment changes the course of occupational projections based on historic trends.

Therefore, the research solution must be longitudinal as well as rich in data.

How do we get rich, longitudinal data?





Tying Surveys to Linked Administrative Databases Provides a Counter Weight to Disadvantages Associated with Each



	Administrative Records		Surveys		Administrative Records Tied to Surveys	
	Advantage	Disadvantage	Advantage	Disadvantage	Advantage	Disadvantage
Longitudinal	X		X		X	
Comparison Group Quasi-Experimental Design	X		X		X	
Total Direct Compensation	X		X		X	
Permits Calculation of:	X		X		X	
1. Tenure with Employer	X		X		X	
2. Experience with Industry	X		X		X	
3. Experience with Locality	X		X		X	
4. Wage Progression Inter-Industry Job Change	X		X		X	
5. Inter-State Job Change	X		X		X	
Rich Detail (May Not Have Occupation, Rate of Compensation, Benefits, Skills Available via Survey)		X	X		X	



Unit of Measure

Unit of measure is the job, regardless of firm characteristics

- The incumbent worker is the vector for job measures (e.g. occupation, rate of compensation, skills)

New hire defined:

- Based on wage records, did not work for the employer previously
- 20 years of UI employer/employee administrative records
- Modeled elimination of highly probable short-term employment (moderately successful)





Cognitive Testing

April 2010

Goals – Make Certain:

- Respondents view the **JOB** (not the incumbent) as the unit of measure
- There is consonance between cover letter and questionnaire
- Respondents view questionnaire items as discrete but complementary



Testing conducted by the Wyoming Survey & Analysis Center, University of Wyoming.

http://doe.state.wy.us/LMI/energy/wysac_report_SRC1014.pdf

4/26/2011

9

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Cognitive Testing

Unstructured Interviews:

- Software/database company – 15 employees
- Hospital – 150 employees
- Hotel/conference center – 155 employees
- School district – 2,400 employees
- Trucking company – 4 employees
- Energy co-op – 164 employees
- Printing company – 15 employees
- Educational facility – 250 employees
- Construction supply company – 4 employees
- Construction company – 110 employees



Testing conducted by the Wyoming Survey & Analysis Center, University of Wyoming.

http://doe.state.wy.us/LMI/energy/wysac_report_SRC1014.pdf

4/26/2011

10

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New Hires Population, Sample, and Response Rates for Wyoming

Panel & First Mailing	Total Hires	Hires Less Short-Term & Previous Employment N	First Mailing		Response Rate %
			n	%	
Panel I: 2009Q4, 6-14-10	30,553	19,340	4,144	21.4	73.4
Panel II: 2010Q1, 9-14-10	27,034	20,562	3,744	18.2	73.9
Panel III: 2010Q2, 12-7-10	45,759	36,533	5,233	14.3	77.0
Panel IV: 2010Q3, 2-7-11	48,267	35,630	4,046	11.4	75.5
Total	151,613	112,065 73.9%	17,167	15.3	75.1





Survey Green Measures

“What percent of the time was this job involved in activities and duties related to increasing energy efficiency, utilizing or developing renewable energy resources, or preserving and/or restoring the environment? (**Please select *one* of the following**)”

- ☐ None of the time
- ☐ Less than 50% of the time
- ☐ More than 50% of the time
- ☐ Don't know





Green Measures: Face Validity

Occupation	N	% Involved in Energy-Efficient Activity
Total	39,902	16.7
Truck Drivers, Heavy & Tractor-Trailer	1,336	27.1
Maids & Housekeeping Cleaners	762	16.1
Carpenters	570	27.0
Bartenders	552	15.3
Nursing Assistants	532	0.0
Roustabouts, Oil & Gas	464	30.0
Operating Engineers ...	358	40.4
Counter Att., Cafeteria, Food	330	0.0
First-Line Sup./Man. Of Const. Trades & Ext. Workers	321	34.0
Land. & Ground. Workers	257	32.1
Personal & Home Care Aides	224	0.0
Tire Repairers & Changers	203	29.6
Industrial Machinery Mechanics	200	39.0
Refuse & Recyc. Mat. Collectors	200	38.9

Occupation	N	% Involved in Energy-Efficient Activity
Bus & Truck Mechanics ...	170	33.4
Fire Fighters	169	35.1
Data Entry Keyers	161	0.0
Food Prep. Workers	150	0.0
Derrick Op., Oil & Gas	123	38.5
Child, Family & School Social Workers	112	0.0
Fence Erectors	100	41.6
Insulation Workers, Mech.	92	90.0
Electrical Power Line Install ...	69	45.5
Septic Tank Servicers ...	67	28.6
Const. & Bldg. Inspectors	54	100.0
Haz. Mat. Removal Workers	47	45.5
First-Line Sup./Man. Of Landscaping, Lawn Service & Groundskeeping Workers	34	57.1
Wind Turbine Svc. Tech.	33	100.0
Construction Managers	32	60.0





Green Measures: Face Validity

Shades of Green

Occupation	N	% Involved in Energy-Efficient Activity	1.0%-49.0% of the Time	50.0%-100.0% of the Time
Total	39,902	16.7	10.2	6.4
Truck Drivers, Heavy & Tractor-Trailer	1,336	27.1	11.9	15.1
Maids & Housekeeping Cleaners	762	16.1	13.0	3.1
Carpenters	570	27.0	18.9	8.1
Bartenders	552	15.3	5.9	9.4
Nursing Assistants	532	0.0	0.0	0.0
Roustabouts, Oil & Gas	464	30.0	22.0	8.0
Operating Engineers ...	358	40.4	15.4	25.0
Counter Att., Cafeteria, Food	330	0.0	0.0	0.0
First-Line Sup./Man. Of Const. Trades & Ext. Workers	321	34.0	18.0	16.0
Land. & Ground. Workers	257	32.1	19.6	12.5
Personal & Home Care Aides	224	0.0	0.0	0.0
Tire Repairers & Changers	203	29.6	29.6	0.0
Industrial Machinery Mechanics	200	39.0	22.0	16.9
Refuse & Recyc. Mat. Collectors	200	38.9	11.1	27.8





Green Measures: Face Validity

Shades of Green (continued)

Occupation	N	% Involved in Energy-Efficient Activity	1.0%-49.0% of the Time	50.0%-100.0% of the Time
Bus & Truck Mechanics ...	170	33.4	24.1	9.3
Fire Fighters	169	35.1	32.4	2.7
Data Entry Keyers	161	0.0	0.0	0.0
Food Prep. Workers	150	0.0	0.0	0.0
Derrick Op., Oil & Gas	123	38.5	23.1	15.4
Child, Family & School Social Workers	112	0.0	0.0	0.0
Fence Erectors	100	41.6	33.3	8.3
Insulation Workers, Mech.	92	90.0	0.0	90.0
Electrical Power Line Install ...	69	45.5	27.3	18.2
Septic Tank Servicers ...	67	28.6	28.6	0.0
Const. & Bldg. Inspectors	54	100.0	22.2	77.8
Haz. Mat. Removal Workers	47	45.5	45.5	0.0
First-Line Sup./Man. Of Landscaping, Lawn Service & Groundskeeping Workers	34	57.2	14.3	42.9
Wind Turbine Svc. Tech.	33	100.0	0.0	100.0
Construction Managers	32	60.0	40.0	20.0





Occupational Turnover

Occupation	N	% Still Employed 1 Quarter Later
Total	39,902	75.4
Truck Drivers, Heavy & Tractor-Trailer	1,336	78.9
Maids & Housekeeping Cleaners	762	68.7
Carpenters	570	66.2
Bartenders	552	74.1
Nursing Assistants	532	77.4
Roustabouts, Oil & Gas	464	70.0
Operating Engineers ...	358	75.0
Counter Att., Cafeteria, Food	330	77.4
First-Line Sup./Man. Of Const. Trades & Ext. Workers	321	86.0
Land. & Ground. Workers	257	44.6
Personal & Home Care Aides	224	79.5
Tire Repairers & Changers	203	66.7
Industrial Machinery Mechanics	200	72.9
Refuse & Recyc. Mat. Collectors	200	58.3

Occupation	N	% Still Employed 1 Quarter Later
Bus & Truck Mechanics ...	252	81.5
Fire Fighters	235	62.2
Data Entry Keyers	223	60.0
Food Prep. Workers	211	71.4
Derrick Op., Oil & Gas	158	53.8
Child, Family & School Social Workers	147	83.3
Fence Erectors	141	16.7
Insulation Workers, Mech.	131	60.0
Electrical Power Line Install ...	106	54.5
Septic Tank Servicers ...	100	85.7
Const. & Bldg. Inspectors	80	77.8
Haz. Mat. Removal Workers	68	36.4
First-Line Sup./Man. Of Landscaping, Lawn Service & Groundskeeping Workers	49	85.7
Wind Turbine Svc. Tech.	46	100.0
Construction Managers	42	80.0





Educational Requirements for Select Occupations



Occupation	N	Median Hourly Wage
Total	39,902	\$12.00
On-the-Job Training		
Cashiers	1,591	8.40
Combined Food Prep & Serving Workers	1,489	8.00
Retail Salespersons	1,479	9.20
Truck Drivers, Heavy & Tractor Trailer	1,336	17.00
Waiters and Waitresses	1,164	7.50
Postsecondary Technical Training		
Automotive Service Tech & Mechanics	302	15.00
Welders, Cutters, Solderers, & Brazers	265	18.60
Fitness Trainers & Aerobics Instructors	195	11.00
Bus & Truck Mechanc & Diesel Eng Spc.	170	15.14
Library Technicians	94	9.00
Associate's Degree		
Registered Nurses	320	23.00
Dental Hygienists	83	27.75
Geological & Petroleum Technicians	61	17.09
Paralegals & Legal Assistants	55	15.64
Legal Secretaries	34	13.00

Bachelor's Degree

Accountants and Auditors	138	22.00
Child, Family, & Sch Social Workers	112	10.00
Prprty, Real Estate, & Com Assoc Mgr	95	18.50
All Other Community & Soc Svc Spc	73	13.83
Loan Officers	71	20.13

Licensure or Certification

Truck Drivers, Heavy & Tractor Trailer	1,336	17.00
FirstLine Sup/Mgr of Const & Extr	321	28.28
Hairdressers, Hairstylists, & Cos	77	10.00
Emergency Med Tech & Paramedics	43	17.50
Licensed Pract & Licensed Voc Nurses	40	20.87

* Some occupations have multiple educational requirements. The occupations in this table are sorted by the highest level of education required.



New Hires Paid Piece Rate in Select Occupations



Occupation	N	% Paid Piece Rate
Total	39,902	4.1
Truck Drivers, Heavy & Tractor-Trailer	1,336	29.9
Waiters & Waitresses	1,164	20.3
Roofers	130	15.4
Self-Enrichment Education Teachers	126	15.8
Hairdressers, Hairstylists, & Cosmetologists	77	42.9
Coaches & Scouts	77	50.0
Loan Officers	71	15.4
Insurance Sales Agents	67	29.3
Taxi Drivers & Chauffeurs	64	41.2



Important Job Skills

Occupation	N	Service Orientation	Critical Thinking	Reading Comp.	Technology Design	Operation & Control	Composite Index
Total	39,902	70.5	76.1	68.5	39.8	59.7	62.9
Truck Drivers, Heavy & Tractor-Trailer	1,336	58.4	80.2	66.7	40.7	90.8	67.4
Maids & Housekeeping Cleaners	762	71.8	35.1	43.5	4.6	26.0	36.2
Carpenters	570	37.8	89.2	59.5	37.8	87.8	62.4
Bartenders	552	87.1	56.5	47.1	16.5	47.1	50.9
Nursing Assistants	532	96.4	94.0	89.3	41.7	47.6	73.8
Roustabouts, Oil & Gas	464	53.0	92.0	64.0	58.0	91.0	76.6
Operating Engineers ...	358	57.7	76.9	50.0	53.8	92.3	66.1
Counter Att., Cafeteria, Food	330	80.6	32.3	32.3	37.1	54.8	41.0
First-Line Sup./Man. Of Const. Trades & Ext. Workers	321	88.0	96.0	78.9	74.0	94.0	86.2
Land. & Ground. Workers	257	39.3	66.1	39.3	30.4	73.2	43.7
Personal & Home Care Aides	224	95.5	90.9	65.9	29.5	34.1	63.2
Tire Repairers & Changers	203	81.5	88.9	77.8	48.1	66.7	72.6
Industrial Machinery Mechanics	200	62.7	84.7	81.4	66.1	81.4	75.3
Refuse & Recyc. Mat. Collectors	200	80.6	66.7	75.0	55.6	83.3	72.2





Demographics

Occupation	N	Female	Male	16-19	20-24	25-34	35-44	45-54	55-64	64+	N/A
Total	39,902	38.5	46.0	8.4	15.2	23.6	15.06	13.5	6.7	1.7	15.5
Truck Drivers, Heavy & Tractor-Trailer	1,336	12.4	72.9	2.3	7.9	23.5	19.0	20.0	10.0	2.3	14.9
Maids & Housekeeping Cleaners	762	57.3	26.7	13.7	12.2	29.8	13.0	8.4	4.6	2.3	16.0
Carpenters	570	13.5	71.6	1.4	8.1	29.7	17.6	20.3	6.8	1.4	14.9
Bartenders	552	58.8	31.8	7.1	23.5	27.1	16.5	14.1	2.4	0.0	9.4
Nursing Assistants	532	84.5	11.9	16.7	25.0	27.4	11.9	9.5	2.4	3.6	3.6
Roustabouts, Oil & Gas	464	1.0	83.0	7.0	25.0	25.0	10.0	11.0	4.0	1.0	16.0
Operating Engineers ...	358	9.6	65.4	5.8	7.7	17.3	17.3	13.5	11.5	1.9	25.0
Counter Att., Cafeteria, Food	330	62.9	30.6	32.3	19.4	14.5	12.9	8.1	1.6	0.0	6.5
First-Line Sup./Man. Of Const. Trades & Ext. Workers	321	6.0	54.0	4.0	2.0	18.0	16.0	14.0	2.0	4.0	40.0
Land. & Ground. Workers	257	17.9	71.4	5.4	14.3	32.1	17.9	5.4	10.7	1.8	10.7
Personal & Home Care Aides	224	68.2	13.6	2.3	18.2	27.3	9.1	13.6	6.8	4.5	18.2
Tire Repairers & Changers	203	22.0	63.0	18.5	22.2	14.8	7.4	18.5	3.7	0.0	14.8
Industrial Machinery Mechanics	200	13.6	66.1	3.4	11.9	25.4	25.4	11.9	1.7	0.0	20.3
Refuse & Recyc. Mat. Collectors	200	19.4	63.9	5.6	5.6	16.7	25.0	11.1	13.9	5.6	16.7





Percent Offered Select Benefits

Occupation	N	Health Insurance	Retirement Plan	Paid Time Off
Total	39,902	33.1	24.7	26.9
Truck Drivers, Heavy & Tractor-Trailer	1,336	39.7	26.7	23.9
Maids & Housekeeping Cleaners	762	22.9	7.6	19.8
Carpenters	570	9.5	5.4	10.8
Bartenders	552	1.2	1.2	1.2
Nursing Assistants	532	42.9	39.3	51.2
Roustabouts, Oil & Gas	464	52.0	28.0	49.0
Operating Engineers ...	358	61.5	21.2	11.5
Counter Att., Cafeteria, Food	330	0.0	1.6	3.2
First-Line Sup./Man. Of Const. Trades & Ext. Workers	321	78.0	66.0	50.0
Land. & Ground. Workers	257	5.4	3.6	0.0
Personal & Home Care Aides	224	6.8	9.1	6.8
Tire Repairers & Changers	203	37.0	25.9	33.3
Industrial Machinery Mechanics	200	50.8	37.3	39.0





Wyoming Career Explorer

Wyoming Department of Employment, Research & Planning

NEW HIRES AND JOB SKILLS SURVEY

WHO'S HIRING IN WYOMING?

After 21 years of steady growth, Wyoming entered an economic downturn in late 2008. A year later, thousands of jobs had been lost, along with millions of dollars in paychecks. In

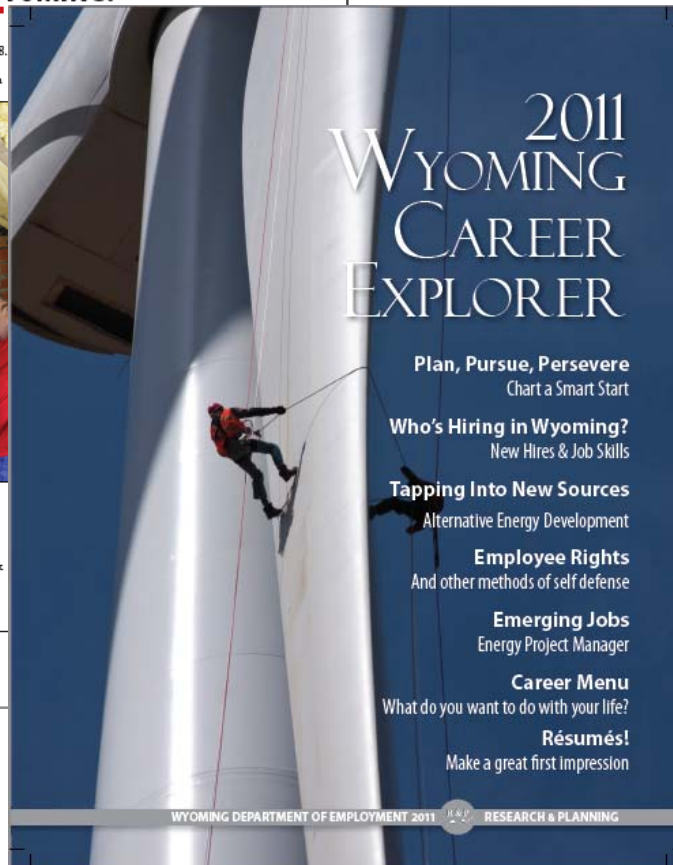
early 2010, the state's economy appeared to have stabilized somewhat, although job and payroll levels were far from the highs seen in 2006 and 2007 (see Figure, page 7). However, just looking at the numbers of employed and unemployed doesn't tell the whole story.

In 2010, Research & Planning (R&P) began looking at which sectors were actually hiring new workers – not just re-hiring ones who had been laid off. And because major investments are being made at the state and national level regarding energy-efficient technologies, R&P also wanted to determine how many of these jobs are related to energy efficiency. To get a clearer picture of these new hires, R&P surveyed employers in Wyoming and can link those survey answers to administrative data, such as wage records, to track the respondents' outcomes, including wages and length of time the job is held.

The U.S. Department of Labor's Bureau of



6 WYOMING CAREER EXPLORER





Other Output in Progress

- Brochure to UI claimants – exhaustees
- Letter to respondents interested in output
- Draft text mining website
- Modeling of probability of gaining a job by Wyoming at Work (ES) and UI claimant status
 - Longitudinal tracking of ES applicants and UI claimants, UI-ES applicants, and controls on earnings progression



4/26/2011

23

<http://doe.state.wy.us/LMI>



Other Output in Progress

“Are You Hiring?”



A helpful guide for job seekers in Wyoming

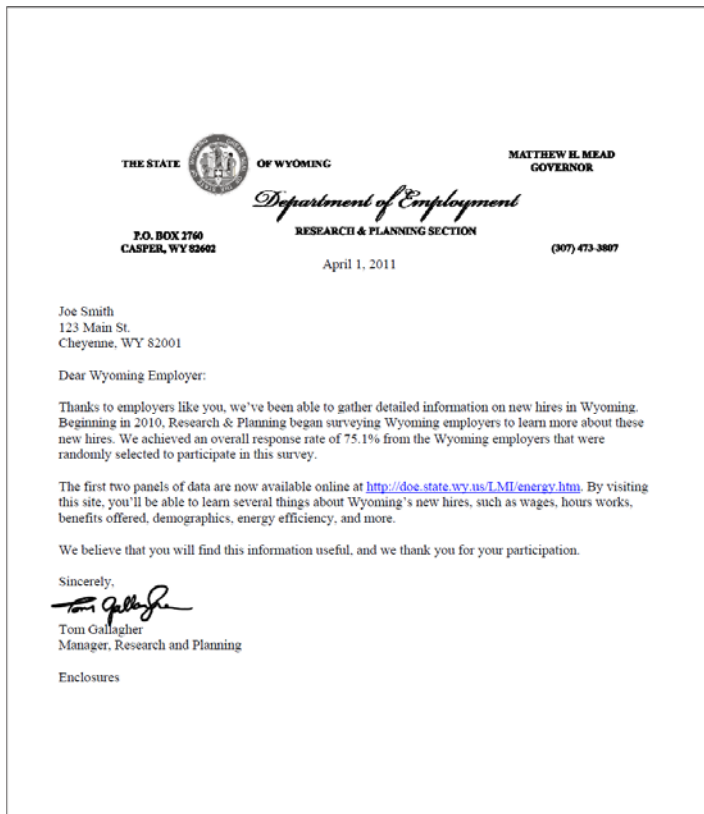
Outreach brochure to UI claimants – exhaustees



4/26/2011



Other Output in Progress



**Outreach
letter to
respondents
interested in
output**

4/26/2011

25

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Other Output in Progress

DRAFT

Text Mining: A Survey Application



Energy Efficiency

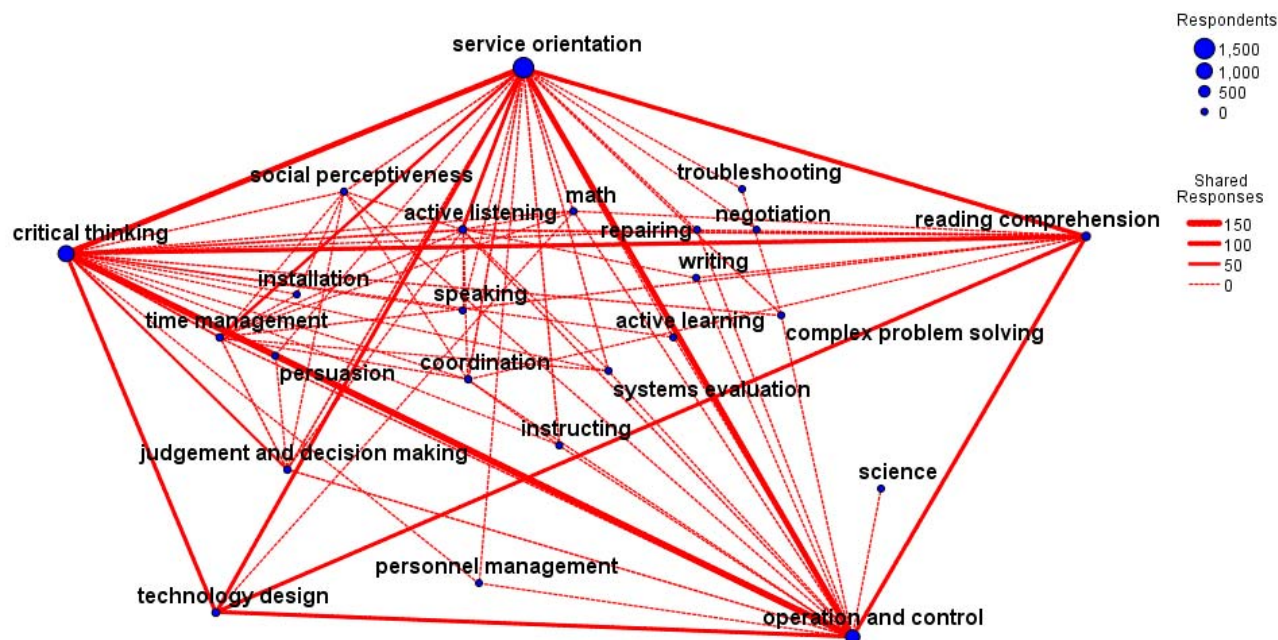
Draft text mining website





Other Output in Progress

Draft text mining website: Skills concept map





Other Output in Progress

Wyoming at Work

- Preliminary research indicates that those browsing Wyoming at Work were much less likely than non-browsers to be a new hire

Current Employer-Job Candidate Search Practices: A Review of the Literature

by: Douglas W. Leonard, Senior Economist

- How do employers and job seekers find one another?





Other Applications

- Could shift to incumbent workers
- Re-survey for occupational change
- HRSA Health Care Workforce Planning Grant Application
- State longitudinal data system pilot
- Hathaway Scholarship





Meet the requirements of the America Competes Act *Public Law 110-69*



4/26/2011

30

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Alignment of Education Programs

Section 6401 Alignment of Secondary School Graduation Requirements with the Demands of (the) 21st Century ...

(e) Authorized Activities

(1) Grants for P-16 Alignment – Each state receiving a grant

(A) shall use the ... funds for –

(i) identifying and describing the content knowledge and skills

- Higher education
- The workforce
- Armed Forces

Based on detailed requirements obtained from higher education, the military, and employers to succeed without remediation.





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