Qualitative to Quantitative Sub Theme Model

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Introduction

Quantitative studies generate data in numerical forms that can be analyzed, summarized and expressed by statistics. Qualitative studies generate data that is often not numerical and more descriptive. Generally, these forms of data are analyzed separately because they can be difficult to relate. In recent years mixed methods research has been developed to combine these types of data which can give a better overall picture of the results.

The BC Public Service conducts a Work Environment Survey (WES) with the goals of understanding their employees' experience, celebrating their successes and identifying their areas for improvement. WES collects quantitative data through 80 multiple-choice questions and qualitative data through a single written response question "What one thing would you like your organization to focus on to improve your work environment?".

We are investigating how the sentiment between the qualitative and quantitative data agree based on the topics addressed within the WES. This will help to determine how well the multiple-choice questions are capturing what improvements employees are wanting. We are hoping this can lead to improvement to the WES structure and ensure the voices of the employees are being heard. It may also help to give more detail and context to the multiple-choice responses.

Methods

To relate the sentiment of the written response question to the multiple-choice questions at the sub-theme level each multiple-choice question was given a sub-theme code. This was done by reading the multiple-choice questions and matching them to the written response sub-themes. Not all multiple-choice questions matched to a sub-theme and others questions matched to multiple sub-themes. Three independent raters coded the multiple-choice questions and inter-rater agreement was calculated. The comments from the written response questions all have negative sentiment that relates to the sub-theme topics. One of the sub-theme codes relates to positive comments but these do not correspond to specific topics and were filtered out of the data set. The multiple-choice questions can range from positive to negative sentiment based on a five-point rating scale.

Since there is only one written response per person with a maximum of five sub-themes to determine the level of agreement the written response sentiment was matched to the related multiple-choice questions. There are three levels of agreement strong, medium and weak as shown in table 2.

Table 1. Level of Agreement from Qualitative and Quantitative Sentiment

Qualitative Sentiment	Quantitative Sentiment	Level of Agreement
negative	negative	strong
negative	neutral	medium
negative	positive	weak

To determine the level of agreement for the main themes the sub-themes data was aggregated and generalized.

Discussion

- do not start writing until inter-rater stuff done and final sub-theme mc done
- discuss sub-theme–mc matching
    - visualization to show which sub-themes appeared multiple times to which didn't at all
    - lack of flexible work mc

Results & Recommendations

- summary table showing top 5 strong and top 5 weak

Literature

Wisdom J and Creswell JW. Mixed Methods: Integrating Quantitative and Qualitative Data Collection and Analysis While Studying Patient-Centered Medical Home Models. Rockville, MD: Agency for Healthcare Research and Quality. February 2013. AHRQ Publication No. 13-0028-EF

- Talks about validating findings using qual and quant data (Wisdom & Creswell, 2013)

Appendix

- create table to match sub-theme numbers to names

Table 3. Overall Counts of each level of Agreement

| Level of Agreement	Count	Total Percentage
strong	14503	46.920
medium	6236	20.170
weak	10173	32.910

Table 4. Themes and Subtheme Level of Agreement

Theme	Sub-theme	Total Number	Strong Agreement (%)	Medium Agreement (%)	Weak Agreement (%)
Career & Personal Development	12	202	44.550	12.870	42.570
	13	3587	34.570	24.900	40.540
	14	507	47.530	22.290	30.180
Compensation & Benefits	21	147	87.070	9.520	3.400
	23	541	76.710	13.120	10.170
	24	1563	87.520	7.930	4.540
Engagement & Workplace Culture	32	307	63.520	10.420	26.060
	33	364	32.420	16.760	50.820
	35	247	27.530	20.650	51.820
Executives	41	2346	52.600	23.910	23.490
	43	1809	52.900	20.510	26.590
Staffing Practices	61	1544	62.240	16.900	20.850
Recognition & Empowerment	71	590	35.930	22.880	41.190
	72	443	40.860	20.540	38.600
	73	150	16.000	20.670	63.330
	74	955	40.520	20.940	38.530
Supervisors	82	409	63.330	17.600	19.070
	83	4209	40.370	16.270	43.360
	84	1959	28.790	19.140	52.070
Stress & Workload	92	514	43.970	25.490	30.540
	93	3719	43.160	21.080	35.760
	94	281	33.810	23.490	42.700
Tools, Equipment & Physical Environment	101	414	64.730	16.430	18.840
	102	1362	60.650	21.070	18.280
	103	385	51.690	30.650	17.660
	105	616	63.640	22.560	13.800
Vision, Mission & Goals	111	1742	31.630	27.320	41.040

Figure 1. Distribution of Agreement per Subtheme

Figure 2.Proportions of Agreeement by Qualitative Theme
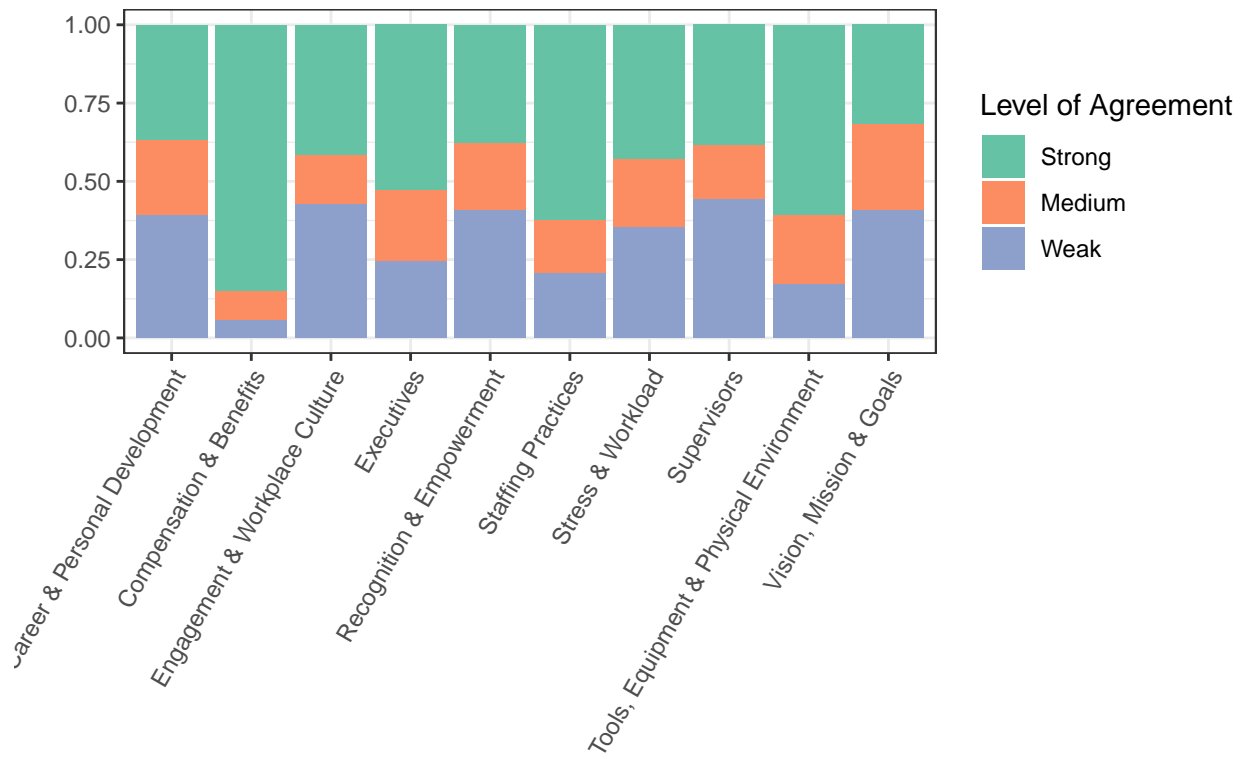
Appendix 1. Subtheme Code Descriptions

Theme	Code	Description
Career & Personal Development	11	Improve new employee orientation
	12	Improve performance management process
	13	Improve training and development opportunities
	14	Provide opportunities for career advancement
	15	Career & personal development - other
Compensation & Benefits	21	Ensure salary parity across government
	22	Ensure salary parity with other organizations
	23	Improve benefits
	24	Increase salary
	25	Review job classifications and/or reporting levels
	26	Compensation & benefits - other
Engagement & Workplace Culture	31	Act on engagement initiatives
	32	Address discrimination and harassment (including bullying)
	33	Improve morale and workplace culture
	34	Treat employees and colleagues better
	35	Value diversity
	36	Engagement Workplace Culture - other
Executives	41	Improve communication between executives and staff
	42	Improve stability and/or change management
	43	Strengthen quality of executive leadership
	44	Executives - other
Flexible Work Environment	51	Improve and/or expand Leading Workplace Strategies (LWS)
	52	Increase flexibility in work location
	53	Increase flexibility in work schedule

	54	Flexible work environment - other
Staffing Practices	61	Ensure hiring and promotions are fair and merit based
	62	Focus on Human Resources planning (recruitment, retention, success
	63	Make hiring process more efficient
	64	Staffing Practices - other
Recognition & Empowerment	71	Enable staff to make decisions
	72	Listen to staff input
	73	Make better use of employees' skills and abilities
	74	Provide more and/or better quality recognition
	75	Recognition Empowerment - other
Supervisors	81	Cultivate effective teamwork and communication within teams
	82	Hold employees accountable for performance
	83	Strengthen quality of supervisory leadership
	84	Improve communication between employees and supervisors
	85	Supervisors - other
Stress & Workload	91	Hire more staff
	92	Improve productivity and efficiency
	93	Review workload expectations
	94	Support a healthy workplace
	95	Stress & workload - other
Tools, Equipment & Physical Environment	101	Ensure safety and security of employees
	102	Improve facilities (e.g. office space, noise levels, air quality, etc.)
	103	Provide better supplies and equipment (e.g., office supplies, field instr
	104	Provide better office furniture (e.g. desks, chairs, etc.)
	105	Provide better computer-based hardware (e.g., desktops, laptops, etc
	106	Upgrade/improve software
	107	Tools, equipment & physical environment - other
Vision, Mission & Goals	111	Assess plans, priorities and strategies for the organization
	112	Improve collaboration between work units or regions
	113	Improve program and/or policy implementation
	114	Pay attention to the public interest and service delivery
	115	Review funding or budget allocation to program
	116	Reduce political influence
	117	Vision, mission & goals - other
Other	121	Other related comments
	122	Positive Comments
	123	Survey Feedback
	99	Unrelated Comments

Comments and To do's

- write some more unit tests/double check filter conditions

- split subtheme appendix to two tables or take two webshots b/c too big for 1 pg

- find references for intro section/put them in

- why does img html tag have to go from back to render properly

- need to look into why some don't agree

- need to create vis/table to show sub-themes to mc relation