Boston Research Group

Modeling Motivation Factor Data to Understand the Relationship between the Hierarchy of Motivation, Strategic Connection, and Total Motivation

Abstract

Motivation Factor asked Boston Research Group to analyze data collected over the past 9 months in an effort to understand the linkages between the Hierarchy of Motivation (Energy, Needs, Talents, and Purpose), Strategic Connection, and Total Motivation. Prior analyses have illustrated the role of the Hierarchy of Motivation in Total Motivation; the current analysis differs in that it also investigates the role of Strategic Connection, relative to the hierarchy, in Total Motivation.

The results clearly indicate that all components play an independent and important role in predicting or driving Total Motivation. However, just as interesting is the relationship among the variables and their applicability to the Hierarchy of Motivation. The results clearly indicate that each element of the hierarchy - Energy, Needs, Talents, and Purpose - are *independent concepts*. That is, the research respondents reflected, in their responses, patterns that completely support the hierarchy of motivation as a construct for examining employee well-being and motivation.

Similarly, the concept of Strategic Connection represents a fifth independent component. Strategic Connection represents a concept that is outside of the Hierarchy of Motivation with modest overlap to the components of the hierarchy.

And finally, these elements - Strategic Connection plus the Hierarchy of Motivation - can be used to effectively model Total Employee Motivation. In that modeling, Purpose and Energy are the primary drivers of Total Motivations (accounting for more than 60% of the variance in Total Motivation) yet all components play a significant role.

Paul Flaxman |Vice President, Boston Research Group | March 2018

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation

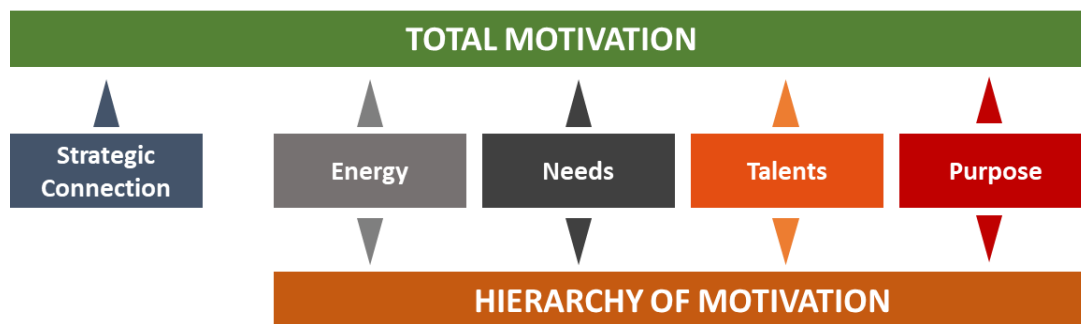Boston Research Group | March 2018

1

Introduction

Past analyses conducted by Boston Research Group have indicated a strong relationship between the Hierarchy of Motivation and Employee Engagement. This initial work represented the first modeling of the four components of the Hierarchy - Energy, Needs, Talents, and Purpose) against a corporate goal (Employee Engagement).

The current analysis looks to focus on the Hierarchy of Motivation yet expand upon the original work in two key manners:

- Redefining the dependent state - Total Motivation - to reflect an employee's level of motivation. This now becomes the key dependent variable and the question is: does the data empirically prove that the Hierarchy of Motivation predict or drive Total Motivation?
- Adding a new dimension - Strategic Connection - to understand the role it plays in Total Motivation

Thus, the ultimate goal is to understand the degree to which the four elements of the Hierarchy of Motivation, along with Strategic Connection, predict or drive Total Motivation (see figure 1).

Figure 1

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation

Boston Research Group | March 2018

2

Methodological Process

Motivation Factor provided Boston Research Group with a data set that was collected in the latter part of 2017 and early 2018. The data consisted of 518 completed surveys collected using Motivation Factors online tools. Those cases include significant representation from Denmark, Canada, Malaysia, Netherlands, Sweden, Switzerland, and the United States.

The model shown in Figure 1 (previous page) provides a good visualization of the statistical process; it included:

- Create a mathematical calculation of the dependent variable - Total Motivation. This is the simple sum of the three variables that make up Total Motivation and is thus represented on a 3 to 15 scale. The three variables that contribute to Total Motivation are:
    - In general I have positive energy when I end my work day
    - In general I am engaged and motivated throughout my workday
    - At the end of my work day, I usually feel fulfilled with the work that I have done

- Factor Analyze[1] the remaining study variables to determine the degree to which they represent the 5 concepts shown above: Strategic Connection, Energy, Needs, Talents, and Purpose.
    - This analysis is based on all remaining variables; the focus is to understand the manner in which the individual study variables can be combined to express the higher level constructs: Strategic Connection, Energy, Needs, Talents, and Purpose.

- Regress[2] the factors against Total Motivation to understand the degree to which each factor drives or predicts Total Motivation.

---

[1] Factor Analysis is a data reduction technique that identifies sets of "like variables" and reduces them to a single factor. "Like variables" are those that co-vary closely and thus, when considered together, represent a theme or factor.

[2] Regression Analysis is a set of statistical processes for modeling the relationship between a dependent variable (Total Motivation) and multiple independent variables (or 'predictors'). It helps to understand how the typical value of the dependent variable changes when any one of the independent variables is varied.

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation

Boston Research Group | March 2018

3

Results from Factor Analysis

The results from the Factor Analysis are presented below. Please note the following:
- Factor loadings are shown in Table 1; factor loadings represent the degree to which each variable loads on each factor (or column). The first factor is named "Purpose" due to the variables that heavily load on that factor (loadings are in bold and it includes: passionate, inspiring, meaningful, etc.).
- The second factor is named "Needs" based on the variables that load on that factor. The third is named "Strategic" (or Strategic Connection) again, based on the variables that load on that factor. "Energy" and "Talents" factors are also identified based on their contributing variables.

Table 1

		Purpose	Needs	Strategic	Energy	Talents
QID2		0.268	0.204	0.098	**0.784**	-0.030
QID3		0.220	0.132	0.093	**0.738**	-0.010
QID4		0.225	0.167	0.223	**0.474**	0.084
QID5		0.134	0.077	0.037	**0.701**	0.011
QID6		0.085	0.142	0.026	**0.635**	0.163
QID8		0.080	0.139	0.174	0.060	**0.824**
QID9		0.169	0.086	0.166	0.054	**0.826**
QID11		**0.767**	0.108	0.178	0.077	0.136
QID12		**0.741**	0.158	0.175	0.121	0.094
QID13		**0.694**	0.169	0.159	0.094	0.088
QID17		**0.732**	0.192	0.145	0.166	-0.015
QID18		**0.792**	0.215	0.206	0.195	0.053
QID19		**0.654**	0.037	0.137	0.138	-0.042
QID21		**0.510**	0.235	0.153	0.189	0.161
QID22		**0.572**	0.008	0.218	0.215	0.208
QID24		0.386	0.239	0.187	0.116	**0.414**
QID25		0.479	0.117	**0.540**	0.096	0.130
QID31		0.322	**0.649**	0.157	0.165	0.203

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation
Boston Research Group | March 2018

4

QID32		0.326	**0.714**	0.253	0.115	0.078
QID33		0.233	**0.733**	0.068	0.101	0.159
QID34		0.196	**0.625**	0.322	0.287	0.006
QID36		0.026	**0.730**	0.193	0.086	0.066
QID37		0.127	**0.708**	0.063	0.178	0.048
QID38		0.024	**0.672**	0.221	0.286	-0.001
QID39		0.023	0.402	0.149	**0.575**	0.034
QID41		0.098	0.121	**0.764**	0.074	0.203
QID42		0.219	0.210	**0.805**	0.051	0.107
QID43		0.126	0.324	**0.565**	0.082	0.093
QID44		0.227	0.226	**0.771**	0.196	-0.001
QID45		0.418	0.246	**0.692**	0.193	0.079
QID46		0.366	0.071	**0.601**	0.057	0.147

Boston Research Group Note: The Factor Analysis alone serves to validate the Hierarchy of Motivation as a paradigm that effectively explores four unique and independent aspects of motivation. The results further demonstrate that Motivation Factor is using a set of variables that effectively gathers these unique aspects of motivation.

Similarly, Strategic Connection represents an independent concept that does not directly overlap with the Hierarchy of Motivation or it's contributing elements.

As a side note and historically speaking, Motivation Factor continues to be willing to modify their thinking and approach as learning continues. This flexibility allows Motivation Factor to create a "living" model that accurately measures these concepts in 21st century companies.

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation
Boston Research Group | March 2018

5

Results from Regression Analysis

The results from the Regression Analysis clearly demonstrate several important findings;
- Each of the five concepts being tested - Strategic Connection, Energy, Needs, Talents, Purpose - play a role in driving Total Motivation.
- The degree to which each concept impacts Total Motivation varies from a high of 35% for Purpose (i.e., Purpose accounts for 35% of the variance in Total Motivation) to a low of 10% for Talents.

Notes: Beta value is a measure of how strongly each predictor variable influences the dependent variable (Total Motivation). The sum of the beta weights, in this analysis, total more than 1 due to the degree of multicolinearity (or overlap) among the independent variables (See Table 2 in Appendix for correlations among the independent variables). This overlap essentially means that, to a modest degree, the independent variables explain some of the same variance in the dependent variable.

In order to present the results in a more concise manner, the beta values are reproportioned to equal 1 (and thus represent the total variance in Total Motivation).

Thus, the strongest two contributors to Total Motivation are, by far, Purpose and Energy. More modest contributions are derived from Needs and Talents.

Further, it is interesting to note that the Strategic Connection 1) plays a significant role in Total Motivation; however 2) that role is less critical to Total Motivation than either Purpose or Energy.

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation
Boston Research Group | March 2018

6

Appendix

Chronbach's Alpha

As part of the analysis, Boston Research Group ran a Chronbach's Alpha against each set of factored variables. Chronbach's alpha is a measure of internal consistency. It provides a measure of the degree to which a set of items are related as a group. It is a measure of scale reliability.

The Chronbach's alpha results further support the concept that the items within each of the five factors are measuring the same overall concept (i.e., they are internally consistent). The one factor/variable that may require additional discovery is Talents which is underrepresented with just three variables and perhaps less effective at expressing a single idea or concept.

Table 2-1

Total Motivation		Alpha if item removed
qid47	In general I have positive energy when I end my work day	0.69
qid48	In general I am engaged and motivated throughout my work day	0.69
qid49	At the end of my work day, I usually feel fulfilled with the work that I have done	0.63
Chronbach's Alpha = .75 (Acceptable)		

Table 2-2

Purpose		
QID11		0.86
QID12		0.86
QID13		0.87
QID17		0.86
QID18		0.85
QID19		0.88
QID21		0.88
QID22		0.88
Chronbach's Alpha = .88 (Good)		

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation
Boston Research Group | March 2018

7

Table 2-3

Needs		
QID31		0.86
QID32		0.85
QID33		0.86
QID34		0.86
QID36		0.87
QID37		0.87
QID38		0.87
Chronbach's Alpha = .88 (Good)		

Table 2-4

Strategy		
QID25		0.88
QID41		0.87
QID42		0.86
QID43		0.89
QID44		0.86
QID45		0.86
QID46		0.88
Chronbach's Alpha = .89 (Good)		

Table 2-5

Energy		
QID2		0.73
QID3		0.76
QID4		0.80
QID5		0.78
QID6		0.79
QID39		0.78
Chronbach's Alpha = .80 (Good)		

Table 2-6

Talents		
QID8		0.55
QID9		0.44
QID24		0.75
Chronbach's Alpha = .69 (Questionable - note, a .7 is "Acceptable")		

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation

Boston Research Group | March 2018

8

Correlations

The **correlations** among the 5 concepts indicates that..
a) All five concepts are related to each other yet
b) Some relationships are stronger than others:
- Strategic Connection and Purpose have the closest relationship to one another
- Needs and Strategic Connection as well as Needs and Energy are also closely related
- The "weakest" (weakest because it is still a positive and significant correlation) is between Talents and Energy. In fact, Talents has the lowest correlation with each of the other concepts.

Table 3

	Purpose	Needs	Strategic	Energy	Talents
Purpose	1	0.490	0.611	0.476	0.433
Needs	0.490	1	0.557	0.537	0.399
Strategic	0.611	0.557	1	0.409	0.469
Energy	0.476	0.537	0.409	1	0.276
Talents	0.433	0.399	0.469	0.276	1

Modeling Motivation Factor Data to understand the Relationship between the
Hierarchy of Motivation, Strategic Connection, and Total Motivation
Boston Research Group | March 2018

9