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RESEARCH ARTICLE

EMERGENCE OF DYNAMIC ORGANIZATION STRUCTURES BASED ON SOCIAL, ASYNCHRONOUS AND SYNCHRONOUS COMMUNICATION AND COLLABORATION PATTERNS BETWEENIT INSTITUTES IN REDMOND, USA AND BANGALORE, INDIA

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ABSTRACT

The relationship between reward and motivation is one of the most fundamental questions in organizational research. Self-determination theory (SDT) acknowledges that performance-contingent rewards are motivational but suggests that these highly contingent rewards undermine better quality (autonomous) motivation because they thwart the satisfaction of individuals' basic psychological needs. Through fieldbased empirical studies, these theoretical assumptions were tested and correlation between emergence of dynamic organization structures based on social, asynchronous and synchronous communication and collaboration patterns based on six factors of rewards: agreeability, acceptability, rewards & recognition, quest for knowledge, fear factor and social power.

INTRODUCTION

Organizational structures have existed and developed from the ancient times of hunters and gathers to royal power structures to industrial and in today's post-industrial structures. The study of organization structure has been evolving with numerous studies, viewpoints and research being conducted to find the intricate balance between its constituents.

Early theorists of organizational structure, Taylor (1911), Wren, Bedeian and Breeze (2002), and Weber (1922) "understood the importance of structure for effectiveness and efficiency and without any question, supposed that whatever structure was needed, people could fashion accordingly. Organizational structure was considered a matter of choice. However, with the introduction of human relations theory in 1930, there was still not a denial of the idea of structure as an artifact, but rather promotion of the creation of a different sort of structures, one in which the needs, knowledge, and opinions of employees might be given greater recognition." 1960s brought in a very diverse view, suggesting that the organizational structure is "an externally caused phenomenon, an outcome rather than an artifact." Modern world organizational theorists such as Lim, Griffiths, and Sambrook (2010) have proposed that organizational structure development is very much dependent on the expression of the strategies and behavior of the management and the workers as constrained by the power distribution between them, and influenced by their environment and the outcome.

Hinds and Kiesler (1995) hypothesized that due to the collaborative nature of work and the way employees are organized in work groups, technical employees, as compared with administrative employees, prefer cross boundary communications. Powell (1990), Barley (1994) and others argued that the rise of technical work and the horizontal organization of technical workers increases collaboration and nonhierarchical communication. Let us now examine the social aspect. Butler's(2001) resource-based theory of sustainable social structures suggested that members contribute time, energy, and other resources, enabling a social structure to provide benefits for individuals. These benefits, could include information, influence, and social support, are the basis for a social structure's ability to attract and retain members. Butler found that communication activity and size have both positive and negative effects on a structure's sustainability.

When we apply the same to Sundararajan's (2009) research, we see emergence of Respect (whether real or perceived and not very different from esteem) as a social factor, which is important to people to validate themselves and the skills they bring to the table in collaborative work situations. He suggested that respect and its companion, influence in a group, and are an important dimensions in collaboration among members in group. Paul (2007) in his paper on how Google designs successful user experiences for its communication products emphasized on the important to understand users' communication behaviors beyond what they do with the product itself. In his research paper he described a technique for building an understanding of people's social networks and

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communication tools by only spending 60 minutes each with a small number of research participants and described examples of the type of insights the technique can yield.

In general, it has become increasingly clear that organizations continue to search for more optimized models as we enter an era of technology which helps enables organic social change. The current OD models work best for the industrial and post-industrial era organizations they were designed around.

Framework

Relative Autonomy Index (RAI) is a measure of motivational autonomy developed by psychologists Ryan, Deci, Chirkov and others (Chirkov, Ryan, & Deci, 2011; Ryan and Deci 2000, 2012). RAI is a direct measure of the individual's ability to act on what they value. This measure is computed with reference to specific domains or activities. According to the SDT formulation, a person is autonomous when their behavior is experienced as willingly enacted and when they fully endorses

Descriptive Statistics

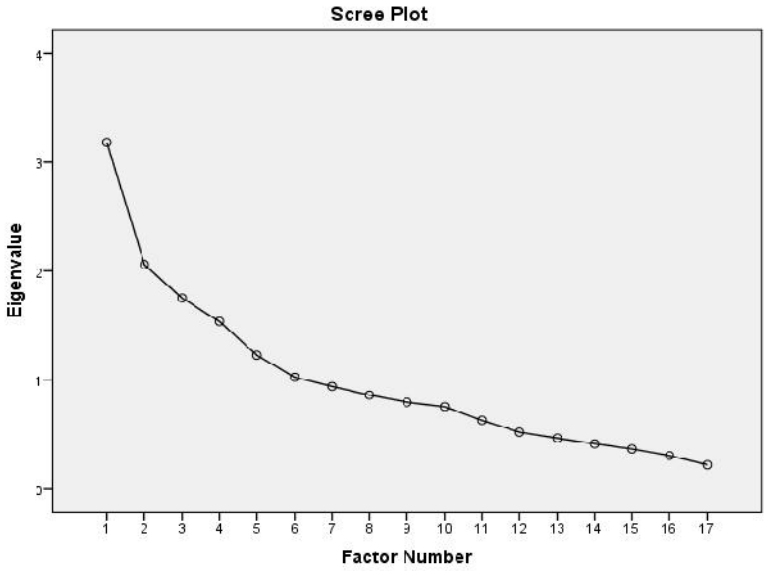
	Mean	Std. Deviation	Analysis N
A1	2.548	2.1056	250
A2	1.312	1.8817	250
A3	3.180	1.9603	250
A4	3.256	1.6618	250
A5	3.580	1.8915	250
A6	1.856	2.8048	250
A7	3.356	1.6420	250
A8	-.600	.4909	250
A9	3.336	1.8189	250
A10	1.856	2.8048	250
A11	3.400	1.7969	250
A12	2.368	2.4473	250
A13	1.592	2.3850	250
A14	1.912	1.5237	250
A15	2.788	1.5100	250
A16	-1.172	1.9405	250
A17	3.168	2.2557	250
A18	-3.628	1.2295	250

Factor Matrix[a]

	Factor					
	1	2	3	4	5	6
A1	.802		.597			
A7	.716	.452	-.531			
A4	.267		.216		-.250	.184
A10	-.372	.889	.264			
A11	.151	.457	.322	.174	-.191	.142
A17		.366	.229	.152	.245	.122
A18		-.321		-.195	.175	
A3	.211	.305		.141	.128	-.194
A14	-.225	.132	.342	-.223		-.230
A12	.170	.141	-.135	.666	.384	.113
A9	.187	.120	-.150	.518		-.332
A5	.321			.464		-.345
A2	.101	.113		.458		
A16	-.106	-.215		-.178	.606	-.139
A15		.140		.101	.555	.172
A13	.192	.277	.234	.446	-.479	.137
A6		.111			-.140	
A8			.257	.106		.600

Extraction Method: Maximum Likelihood.

a. 6 factors extracted. 10 iterations required.



The rest of the paper is structured as follows: next we discuss framework, survey question, and aggregation of the Relative Autonomy Index. Post which we discuss the internal validity test for the elements of the RAI. The internal validity test employ factor analysis.

the actions in which they are engaged and/or the values expressed. People are most autonomous when they act in accord with their authentic interests or integrated values and desires (Deci & Ryan, 1985; Ryan & Deci, 2000; Ryan, Deci, & Grolnick, 1995). SDT contrasts autonomous behavior with controlled behavior, 'in which one's actions are experienced as

controlled by forces that are phenomenally alien to the self, or that compels one to behave in specific ways regardless of one's values or interests' (Chirkov *et al*., 2003). The RAI measures the extent to which the person's motivation for their behavior in a specific domain is fairly autonomous as opposed to somewhat controlled.

Human behavior is motivation driven both intrinsic and extrinsic. Intrinsic motivation is associated with the enjoyment of the activity in itself. Extrinsic motivation is the performance of a behavior in an instrumental way (one's action is effectively coerced) which can be categorized into four different types determined by the degree of self-endorsed behavior: *external, introjected, identified and integrated*.

We however need to note that distinction between all types of motivations is not relevant in every context (Ryan & Connell, 1989; Levesque *et al*., 2007), which is why the analysis has combination subscales: external, introjected, identified and integrated motivation.

Survey

The survey questions were designed to ask individuals to rate each of four possible motivations for their actions in a specific domain. RAI then combines these subscales into one single measure which is the weighted sum of the person's scores in the subscales. The subscales weights are a function of their position in the self-determination continuum: -2 for extrinsicmotivation, -1 for introjected motivation, 1 for identified motivation and +2 for intrinsic motivation. Which makes the RAI range between -5 and 5. Positive scores are interpreted as individual's motivation being relatively autonomous; and negative scores indicate a controlled motivation.

Data

Data was collected thru survey conducted for employees of IT Industry in Redmond, USA and Bangalore, INDIA from Oct 2014 thru Feb 2015. The total sample size is 250 individuals each foremployees in Redmond, USA and Bangalore, INDIA. The questionnaires include several modules that provide an integrated data platform to answer a variety of research questions. In order to measure effectiveness of RAI to measures autonomy of individuals, we first examine whether the data collected is consistent with the hypotheses of our measurement model and second we will perform standard tests to assess the internal consistency of the scale itself.

We test two main hypotheses to assess adherence of data to measurement model.

1. Our data has four dimensions (extrinsic, introjected, identified and intrinsic motivations).
2. Motivation subscales have an ordered correlation among them.

If we examine the structure of our questions, we are investigating the feasibility of a four dimension structure, however, the main limitation of this approach is that it disregards the domain-specific nature of our autonomy measure. i.e. it assumes that questions about the same type of motivation but referring to different areas of decision-making load on a common factor. Following Guio, Gordon and Marlier (2012), we analyze the structure of the data using three different statistical methods: factor, multiple correspondence and cluster analysis.

We start by performing an exploratory factor analysis (EFA) to test if a six factor solution that discriminates the items of the four motivation subscales emerges. To facilitate the interpretation of the factor loadings we rotate the axes. We use oblique rotation, given that the motivation subscales are likely to be correlated.

Factor Correlation Matrix

Factor	1	2	3	4	5	6
1	1.000	-.064	205	.067	-.185	.143
2	-.064	1.000	-.059	-.411	.098	-.055
3	.205	-.059	1.000	.176	-.025	.109
4	.067	-.411	.176	1.000	-.059	.033
5	-.185	.098	-.025	-.059	1.000	-.018
6	.143	-.055	109	.033	-.018	1.000

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

Firstly, we consider the full set of items. The sample under analysis is very small. According to Kaiser criterion, there are six factors in the data as they have Eigenvalues > 1. The first four factors account for 50 percent of the variance, while the last two account for 7 and 6 percent. The Extraction Sums of Squared Loadings provides similar information based only on the extracted factors. The means for each of the items appear to be reasonable as each of the items is measured on RAI scale. No values are above +5 or below -5. The standard deviations are all similar suggesting that there are no outliers for any of the items. Factors capturing extrinsic and introjected subscales are strongly correlated, and they are both weakly correlated with the factor capturing intrinsic subscale. However, unlike the case of new hires, we find that contrary to theory, the factors capturing extrinsic and intrinsic motivations are again strongly correlated. The Scree is plot shows that there are six relatively high (factors 1, 2, 3, 4, 5 and 6) eigenvalues. Retain factors that are above the 'bend' – the point at which the curve of decreasing eigenvalues change from a steep line to a flat gradual slope. The Factor Matrix represents information from initial un-rotated solution. The values are weights that relate the item (or variable) to the respective factor. The Goodness-of-fit Test determines if the sample data (correlations) are likely to arisen from six correlated factors. In this situation we want the probability value of the Chi-Square statistic to be greater than the chosen alpha (0.05). Based on our results the six factor model is a good description of the data.

The Pattern Matrix shows the factor loadings for the rotated solution. Factor loadings are similar to regression weights (or slopes) and indicate the strength of the association between the variables and the factors.

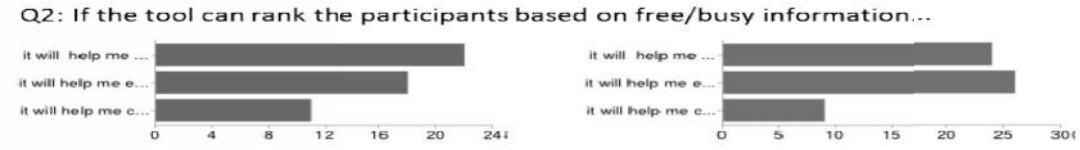
The solution has been rotated to achieve an interpretable structure. The Structure Matrix shows the correlations between the factors and the items for the rotated solution. Since the factors are correlated the Pattern Matrix and the Structure Matrix are not the same.

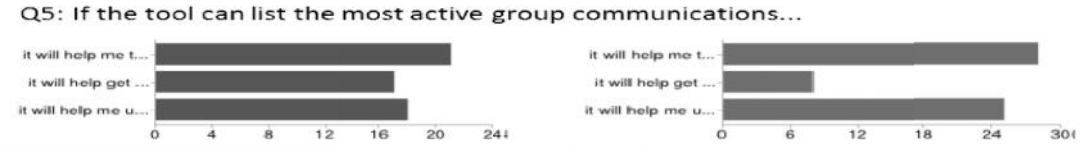
The Factor Correlation Matrix shows that factors 1, 2, 3, 4, 5 and 6 are statistically correlated.

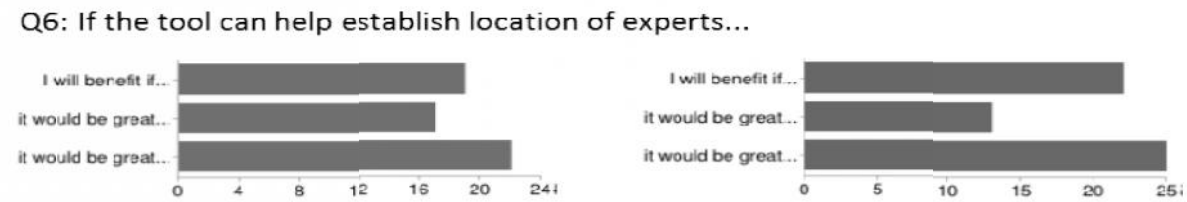
Next we compare the overall experience of using Electronic Tools for Social Communication and Collaboration to achieve goals and objectives and find that there is relatively same consensus between the two groups.

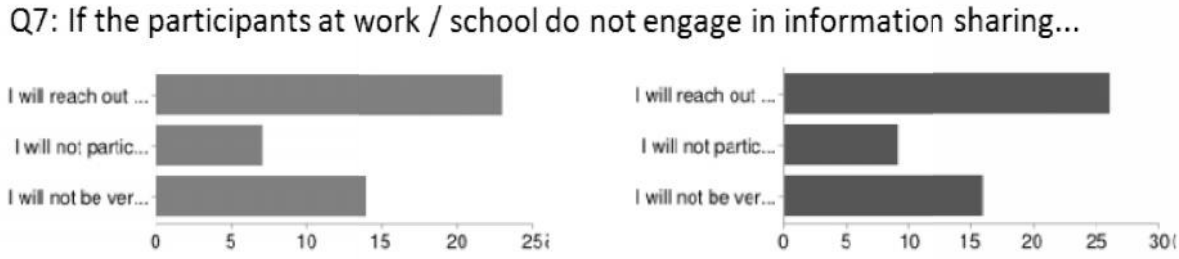
The next 7 questions (Q1 thru Q7) the responses from the two groups is relatively synonymous, leading to observation that these two diverse groups relate to similar RAI.

RESULTS









Starting with the comparison between education levels of new hires and senior leaders, we find that 96% of new hires are graduates as compared to 54% of graduates for senior leaders. We also observe that 41% of senior leaders are post graduates with 5% being doctorate or above.

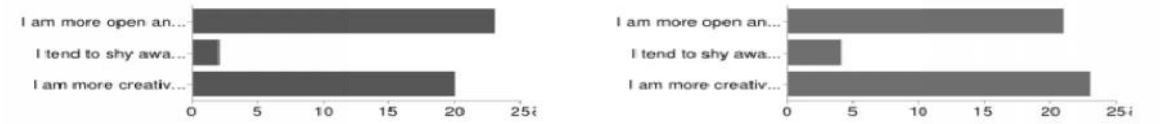
The main differences start to emerge in question 8, where we observe that senior leaders are more mindful to extrinsic, introjected feedback and in question 14 where the response outlines the need for senior

Q8: If I only get negative or unusable information from participants...

Q9: If the participants in a discussion do not agree to reach a consensus...

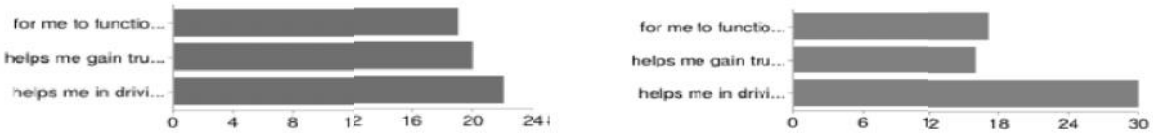
Q10: During formation of groups...

Q11: During discussions within the group...

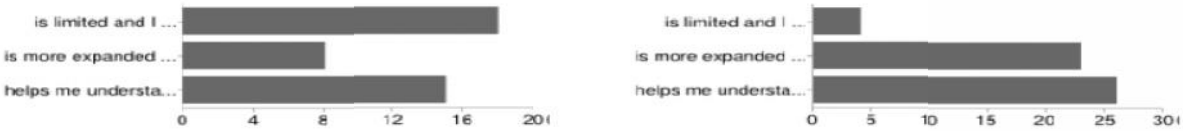


Q12: During winding down of groups and creation of new ones...

Q15: Communication and Collaboration is essential...



Q16: My communication and collaboration with my direct group...



Q17: During my communication and collaboration...

Q18: When I try to create a new group...

management for intrinsic and extrinsic rewards which is not observed in new hires.

CONCLUSION

In this paper we provide a detailed examination of a measure of individuals' autonomy, the Relative Autonomy Index, using data representative of new hires and senior leadership in IT Industry. We report mixed results in terms of the conceptual validity of the RAI. On one hand, when we consider a reasonably sized sample, our statistical methods identify four dimensions in the data, each one corresponding to one of the motivations subscales, as predicted by our measurement model. This means that in most cases the correlations between our subscales perfectly fit the self- determination continuum.

Our exploratory analysis of the survey results shows that both new hires and senior leaders are similar in their autonomy except of areas where their experience in the industry lead them to distinguish their need for recognition, participation and rewards.

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