Develop a model to map client's people development requirements and the delivery of the service to achieve effective results

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Abstract— The People development requirements are individual skills and competencies required to improve performances of the entire organization or the company. Many competitive companies are concerned in fulfilling their internal employees' development requirements..

It is very important to gather the exact requirements of the client and understand the skills that they are lacking because of the time and resources spent to fulfill the business needs and the mismatch between what is delivered and what was actually needed. This project attempts to develop a suitable model using graph theory concepts to map clients' people development requirements and how to cater an effective service for clients which will meet their requirements.

A questionnaire that contains fourteen question statements was designed to gather information from the participants and the questions are based on measuring confidence, knowledge, leadership and management, time management, communication skills, problem solving and decision making. The graph is drawn considering the interrelations between questions and according to participants' responses. Areas of improvements and strengths identified accordingly.

After analyzing all the graphs from the participants using graph theoretical concepts it concludes that their areas of improvement are broadly different from each other. By having a proper overall understanding about the areas of improvement of the participants will enhance the effectiveness through customized way of delivery.

Keywords— Customized delivery, Effective service, Organizational benefits, People development requirements, Training effectiveness

I.   INTRODUCTION

Any organization, may it be profit oriented or nonprofit oriented, strives for success with the aim of being the market leader in the respective industry. Due to the highly competitiveness and the turbulence of the present day society, organizations, today, more than ever before, need to obtain and utilize human resources in it in an effective and efficient manner. Thus, they regularly focus on keeping their human resources up-to date, where a special attention is paid by the management and the administration for all the core functions of human resource management (HRM). In the present day different organizational, social and economically related areas, this has become a main focal point, which is predicted to be highly influential to the achievement of the organizational goals and therefore organizations successful in the market.

As long as HRM is considered, Training and development could be considered as one of the main key responsibilities, which plays an important role in the effectiveness of organizations and to the experiences of people in work. Implications for productivity, health and safety at work and personal development are generally occupied by Training and Development and, as per today, even the employee laws state that all organizations employing people need to train and develop their staff as a compulsory requirement. Thus, many organizations are aware of this requirement and invest effort and other resources in training and development in larger scales. In here, training investment can take the form of several ways. One most popular training method could be employing specialist training and development staff and paying salaries to staff undergoing training and development department. However, outsourcing the training functions to another organization that is specialized in delivering training and development programs is also now so popular among organizations nowadays. In any of these forms the training program should be effective and it must meet the objectives of the employees of the organization.

This study, therefore, attempts to develop a mathematical model to identify the strengths and areas of improvement of the employees which will probably lead to a customized and effective training program of any organization.

1.1 Background of the Study
Due to intensified globalization, Organizations, today, are facing increased competition and this has been drastically

fastened by the changes in technology, political and economic environments and thus, prompting organizations to train their employees could be identified as one of the best methods to make them ready to adjust to the increases above and thus enhance their overall performance. Here, it is significant to not neglect the current evidence on growth of knowledge in the business corporate world throughout the last decade. This growth has not only been brought about by advancements in technology nor a combination of factors of production but enhanced efforts towards development of organizational human resources. It is therefore, every organization's responsibility to get the job performance of the employees improved. Thus, Implementation of training and development is one of the main steps that most companies need to achieve, regardless of the scale of operation it may own.

According to what has been talked in the previous discussion, employees are a crucial resource and, it is more crucial to optimize the contribution of employees to the company aims and goals as a means of sustaining effective performance. This therefore calls for management and administration of any organization to ensure a sufficient supply of staff that is technically and socially competent and capable of career development into specialist departments or management positions. This creates the basic question as to why Human Resource is this much important, and this question has been answered by a number of researchers over the past. As per them, human resources are the intellectual property of the firm, and, thus, employees prove to be a good source of gaining competitive advantage which is highly sustainable. In this case, training and development is considered to be the only way of developing organizational intellectual property through building employees competencies. In order to reach the organizational goals established, organizations have to obtain and utilize human resources effectively. Organizations, therefore, need to design its human resource management in ways that fit into the organization's structure as it will make the organizations realize ultimate success.

1.2 Problem Statement

On the other hand, human capital can be identified as the most important resource an organization can have as it has a direct and an observable impact on the organization's success. According to researchers, the modern workplace is a highly turbulent environment which calls for employees and managers of all levels to regularly improve and achieve objectives. This fact, in turn, requires that the organization continually invest in the enhancement of the human capital. Improving personal and group managing skills, shaping and implementing the ethics and norms that characterize the

organization's culture and which set it apart, managing and leading changes, and many more are included in this task of training employees in a precise manner.

Training and Development generally requires huge amounts of time and resources, but there is often a clear mismatch between what is delivered by the training program and what was actually required by the employees. However, conducting an effective training program will provide both the individual employees and company a satisfaction of a potential progress and, also more benefits that will make the cost and time a worthwhile investment.

1.3 Social Styles Characteristics
Characteristics of four social styles are listed below.
Analytical
1   Focuses on tasks more than people
2   Thoughtful, careful fact-oriented and precise
3   Good at objective evaluation and problem-solving
4   Likes organization and structure
5   Avoids group work, preferring to work alone
6   Cautious in decision-making

Amiable
1   Friendly and relates well to others
2   Good at listening and teamwork
3   Dislikes of conflict and risk-taking
4   Seeks security and like organized workplaces
5   Slow decision-making
6   Prefers to be told what to do than to lead
7   Fears change and uncertainty

Expressive

1   Creative
2   Outgoing and enthusiastic
3   Spontaneous and fun-loving
4   Interacts well with others at work
5   Good at persuading and motivating
6   Fears being ignored or rejected
7   Like to be acknowledged
8   Dislikes routine and complexity

Driver
1   Competitive and needs to win
2   Seeks control and being in charge
3   Fast-acting
4   Plans carefully
5   Results-oriented
6   Task-focused
7   Dislikes inefficiency and indecision

II.   OBJECTIVES OF THE STUDY
The main objective of the study is to increase effectiveness of the training program by customizing the way of delivery and the specific objectives of the study is

to develop a mathematical model to identify employee's strengths and weakness individually.

III. METHODOLOGY

The social styles questionnaires with having fourteen statements were used to obtain information.

First objective is to show how the questionnaire can be represented as an undirected graph. For each question in the questionnaire associate a vertice and four vertices for the social styles which are Analytical, Amiable, Expressive and Driver.

That is,

If $\{Q_i\}$, i = 1,2,3…14 is the set of questions and we have a set of vertices $\{V_i\}$ i=1,2,3…14 where question Q_i corresponds to vertice V_i.

An edge will represent the link between response and its associated social style. Each question can have multiple responses and all the responses will be connected to its associated social style. All the fourteen questions responses will be connected to main four vertices which are Analytical, Amiable, Expressive and Driver.

After modeling the graph, betweenness centrality was calculated for each four vertices which represent the social styles.

Betweenness Centrality

For a given node v, calculate the number of shortest paths between nodes s and t that pass through v, and divide by all shortest paths between nodes s and t.

The betweenness centrality $Cb(V)$ of a node V is computed as follows:

$$Cb(V) = \Sigma i{\neq}n{\neq}j \, (\sigma st \, (V) \, / \, \sigma st)$$
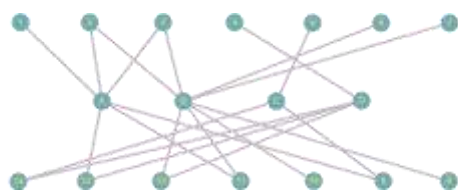
IV. RESULTS AND DISCUSSION
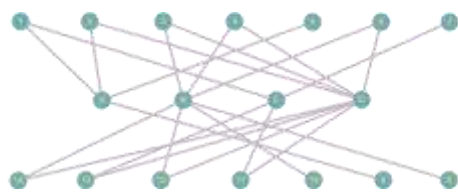

Fig. 1: Graph model for respondent 01

Fig. 2: Graph model for respondent 02

These two graph shows how the respondents selected the characteristics for the fourteen statements of the questionnaire.

Calculation of betweenness centrality for vertices A,B,C and D for respondent 01

$C_b(A)$ = $(\sigma_{1,2}(b) / \sigma_{1,2}) + (\sigma_{1,3}(b) / \sigma_{1,3}) + (\sigma_{1,13}(b) / \sigma_{1,13})$
+ $(\sigma_{1,11}(b) / \sigma_{1,11}) + (\sigma_{1,9}(b) / \sigma_{1,9}) + (\sigma_{2,3}(b) / \sigma_{2,3})$
+ $(\sigma_{2,13}(b) / \sigma_{2,13}) + (\sigma_{2,11}(b) / \sigma_{2,11}) + (\sigma_{2,9}(b) / \sigma_{2,9})$ + $(\sigma_{3,13}(b) / \sigma_{3,13}) + (\sigma_{3,11}(b) / \sigma_{3,11}) +$
$(\sigma_{3,9}(b) / \sigma_{3,9}) + (\sigma_{13,11}(b) / \sigma_{13,11}) + (\sigma_{13,9}(b) / \sigma_{13,9}) + (\sigma_{11,9}(b) / \sigma_{11,9})$
= (1/1) + (1/1) + (1/1) + (1/1) +(1/1) + (1/1) + (1/1) + (1/2) + (1/1) + (1/1) + (1/2) + (1/1) + (1/1) + (1/1) +(1/1)
= 14

$C_b(B)$ = $(\sigma_{2,3}(b) / \sigma_{2,3}) +(\sigma_{2,6}(b) / \sigma_{2,6}) +(\sigma_{2,7}(b) / \sigma_{2,7})$
+$(\sigma_{2,12}(b) / \sigma_{2,12}) +(\sigma_{2,11}(b) / \sigma_{2,11}) +(\sigma_{2,10}(b) / \sigma_{2,10}) +(\sigma_{2,8}(b) / \sigma_{2,8}) +(\sigma_{3,6}(b) / \sigma_{3,6}) +(\sigma_{3,7}(b) / \sigma_{3,7}) +(\sigma_{3,12}(b) / \sigma_{3,12}) +(\sigma_{3,11}(b) / \sigma_{3,11})$
+$(\sigma_{3,10}(b) / \sigma_{3,10}) +(\sigma_{3,8}(b) / \sigma_{3,8}) +(\sigma_{6,7}(b) / \sigma_{6,7})$

+$(\sigma_{6,12}(b) / \sigma_{6,12}) +(\sigma_{6,11}(b) / \sigma_{6,11}) +(\sigma_{6,10}(b) / \sigma_{6,10}) +(\sigma_{6,8}(b) / \sigma_{6,8}) +(\sigma_{7,12}(b) / \sigma_{7,12}) +(\sigma_{7,11}(b) / \sigma_{7,11}) +(\sigma_{7,10}(b) / \sigma_{7,10}) +(\sigma_{7,8}(b) / \sigma_{7,8})$
+$(\sigma_{12,11}(b) / \sigma_{12,11}) +(\sigma_{12,10}(b) / \sigma_{12,10}) +(\sigma_{12,8}(b) / \sigma_{12,8}) +(\sigma_{11,10}(b) / \sigma_{11,10}) +(\sigma_{11,8}(b) / \sigma_{11,8})$
+$(\sigma_{10,8}(b) / \sigma_{10,8})$
= (1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) + (1/2) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1) +(1/1)
= 28.5

$C_b(C)$ =$(\sigma_{5,14}(b) / \sigma_{5,14}) + (\sigma_{5,9}(b) / \sigma_{5,9}) + (\sigma_{14,9}(b) / \sigma_{4,19})$
= (1/1) +(1/1) +(1/1)
= 3

$C_b(D)$ = $(\sigma_{4,14}(b) / \sigma_{4,14}) + (\sigma_{4,13}(b) / \sigma_{4,13}) + (\sigma_{4,12}(b) / \sigma_{4,12}) + (\sigma_{14,13}(b) / \sigma_{14,13}) +(\sigma_{14,12}(b) / \sigma_{14,12}) + (\sigma_{13,12}(b) / \sigma_{13,12})$
= (1/1) + (1/1) + (1/1) + (1/1) +(1/1) + (1/1)
= 6

Same calculations are carried for other respondents as per their answers and the node that has the highest number for the betweenness centrality is identified. Corresponding social style for the identified node is concluded as the respondents' social style. Characteristics of other social styles can be identified as weaknesses of the respondent.

	Social style with the highest value for betweenness centrality
Respondent 01	Amiable
Respondent 02	Driver
Respondent 03	Expressive, Driver
Respondent 04	Amiable
Respondent 05	Amiable

V.   CONCLUSION

After identifying the highest betweenness centrality node which reflects the amount of control that node exerts over the interactions of other nodes in the network we can decide the most relevant social style of the respondent. This study was carried off with five respondents and results obtained from graphs conclude that each one of them have whole different social styles. Although this is carried out with lesser number of respondents and still their styles differ significantly indicates that people's areas of strengths and areas of developments are varying broadly.

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