A REVIEW OF PROMINENT MODELS OF TEAM ROLES AND CONCEPTUALIZING A NEW MODEL

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Abstract

Purpose of the study: This study aims to arrive at a new conceptual model of team roles that minimizes the weaknesses and maximizes the strengths of the prominent existing models. This study attempts to connect the new conceptual model of team roles with the five-factor model of personality.

Methodology: Prominent existing models of team roles were compared and contrasted amongst themselves. Each model was carefully studied to identify underlying strengths and weaknesses. A comprehensive list of team roles with definitions from each model was put together. The list was carefully examined to identify team roles that can be merged or eliminated. A new model was conceptualized by merging and eliminating team roles wherever necessary.

Main Findings: Each of the prominent existing models reviewed missed some critical aspects when contrasted with each other. There is a duplication of roles in some models while some important roles are missing in other models. A more comprehensive conceptual model has been proposed.

Applications of this study: The conceptual model proposed in this study can be further tested and developed to create team role inventories. This model can be useful for team building in organizations of all kinds. The model would help in identifying the right members for a new team as well as in predicting outcomes of intact teams.

Novelty/Originality of this study: The new conceptual model of team roles proposed in this study connects with the contemporarily relevant five-factor model of personality. This makes it different from previously existing models. The proposed model encompasses the strengths and avoids the weaknesses of past models.

Keywords: Team, Team Roles, Model, Five-factor, Personality, Teamwork.

INTRODUCTION

Merriam-Webster dictionary defines a group as- "*A number of individuals assembled together or having some unifying relationship*". The behavior and performance of an individual may seem different when working alone as compared to when working in a group and this makes it very interesting and necessary to study group behavior and dynamics (Blinder and Morgan, 2000). For example, a person who is very high performing when working on own, may not yield the same results in a group if there are too many clashes and bickering in the group. But on the other hand, even a group of average performers can bring about extraordinary results with good synergy (Groysberg, Jeffrey T. Polzer and Hillary Anger Elfenbein, 2011). The words group and team may be view synonymously or differently depending on the situations. For most parts, Academic research papers have used the words synonymously (Manjari Srivastava and Arvind K. Sinha, 2011). The composition of a team can be studied from varying perspectives. Some of the surface level perspectives like age, gender, culture, and region of the members of the team and from some deeper level perspectives like personality type, aptitude, attitude, and team roles of the members of the team (Jackson et al., 1995).

Both perspectives have their significance, while this paper explores team composition from deeper level components. Team role theories are especially relevant to organizations and have generated a lot of research from as early as 1948 to present times. Team roles are different from functional roles as they bear no relation with the technical area of expertise. A team role is a characteristic way in which a person is contributing to the team in terms of the pattern of interacting with others. With many theories of team roles, with some being very popular and others less so, this paper aims to compare and contrast prominent existing theories. This study analyses prominent models on the concept of team roles from the 1940s to the 2000s.

In this study, the prominent models were compared and contrasted with each other. The models were analytically studied to arrive at the strengths and shortcomings of each model. Through a review of the literature and in-depth study of the models, the study concludes that there exists a pressing need for a new comprehensive model of team roles which encompasses the strengths and avoids the weaknesses of past models. A conceptual model that is based on the five-factor model of personality, which is contemporary, has been proposed towards the end.

REVIEW OF LITERATURE

According to the Social identification approach two or more people who perceive they are a part of the same social category are considered to be a group (Turner, 1982). The words 'team' and 'group' are being used interchangeably here as the word 'team' is used more in popular management literature while 'group' is used more in academic research (Manjari Srivastava and Arvind K. Sinha, 2011).

Groups are of great importance to organizations as groups are better at problem-solving than individuals. This holds for verbal as well as spatial problems (Faust, 1959). Also, groups are better at decision making than individuals. Based on two experimental studies, in first study groups were better by 3.7% while in the second study groups were better by 3.5% (Blinder and Morgan, 2000). Thus with studies indicating that groups yield better results than individuals, it justifies the renewed interest in the group and teamwork in organizations.

Technically though two or more individuals together form a group, in context of what determines the performance of groups, further, as the question arises about the size of the group and a group of 6 members is best suited for decision making (Robert C. Ziller, 1957). There is a nonlinear relationship between group size and group problem solving where larger groups have lower member consensus than smaller groups. Group size and performance of the best member account for 42% variance in group problem solving (George E. Manners, 1975). Apart From size, the composition of a group is also an important factor.

Intuitively it may seem best to assemble individual high performers and expect the team to be high performing. But just assembling star performers of a domain won't make the best team possible but rather having too many top performers may worsen team performance. The study found that up to a certain point having starred in a group helps after which it affects the group's effectiveness negatively. That is till 65.1 group composition of star analysts increases group effectiveness and after that, it decreases group effectiveness (Groysberg, Jeffrey T. Polzer and Hillary Anger Elfenbein, 2011). This point's to the fact that group composition is more than just the intuitive approach of putting the best people together.

Surface level composition vs. deep level composition

In terms of composition, teams can be either heterogeneous or homogeneous. Heterogeneous teams make better decisions than homogenous teams as they have access to varied perspectives and opinions (Antonio S. Mello and Martin E. Ruckes, 2006). Though homogeneous teams may produce short term results, heterogeneous teams perform better in the long run (Paul Steffens et al., 2012). Thus diverse team composition is a variable contributing to team performance. Diversity is not merely demographic diversity but it is also diversity at the level of knowledge, behavioral styles, values, beliefs, etc. that matters in groups and teams (Jackson et al., 1995). Demographic diversity is surface-level diversity while diversity in attitudes, aptitudes, personality, etc. is deep-level diversity.

Surface level composition

Heterogeneity in terms of gender helps improve team processes and partly team outcomes (Julia B Bear and Anita Williams Woolley, 2011). In managerial teams of three, a combination of two males and one female resulted in maximum economic output from the team (Jose Apesteguia et al., 2012).

Cultural diversity impacts teamwork in varied ways. Multinational teams can have a superior position in terms of information. Those teams have a wider source of information and thus tend to be better in organizing it. As the putting together of different pieces of information is one of the key determinants of effective decision-making especially when dealing with complex problems, the multi-cultural teams do better (Ricarda Bouncken et al, 2016). Task-related diversity helped in improving the quality and quantity of team performance (Sujin K. Horwitz and Irwin B. Horwitz, 2007).

Deep level composition

As a group works together for a longer period together, deep-level diversity of the team starts mattering more than surface-level diversity. Thus, what matters, in the long run, is the deep-level composition of groups and teams. Deep level composition in terms of personality is an important aspect of group composition (Harrison et al., 1998). According to the five-factor model, five underlying factors can be used to describe complete personality, namely Extroversion or Surgency; Agreeableness; Conscientiousness; Emotional stability, and Culture (Norman, 1967). The current nomenclature of the factors can be abbreviated to 'OCEAN':

O- Openness to Experience (culture)

C- Conscientiousness

E-Extraversion (/ Introversion)

A-Agreeableness

N-Neuroticism (Emotional Stability)

The personality profile of members of new product development teams as per the Five-Factor Model (of personality traits) has implications for team performance. Overall heterogeneity in the personality of team members as per the five-factor model is positively related to team performance for teams working on radical innovation products but negatively related to team performance in case of teams working on incremental innovation products. In case of incremental innovation teams, there is more certainty and every member thinking on similar lines of thought could help but in case of radical innovation teams where there is a high degree of uncertainty the members have to think on different lines of thought to arrive at a viable solution (Reilly et al., 2002). In work teams, average levels of as well as variability in certain personality traits contribute towards the performance of teams in different ways. For the traits of conscientiousness, agreeableness, and openness to experience, average levels in teams were positively related to team performance while for traits of extraversion and emotional stability the variability of traits in teams was positively related to team performance (Neuman et al., 1999). Also, three concepts are important to a group's performance. The three concepts are the lowest score in the group on a personality trait, the highest score in the group on a personality trait, and the variability in scores of a particular trait in the group. Variability in scores of extraversion is positively related to group performance on the additive task but not on the conjunctive task. While the maximum score on the neuroticism trait is negatively related to group performance in the conjunctive task but not on the additive task (Kraemer et al., 2014). Further task conflict in teams improving team performance is moderated by certain personality variables. They found that task conflict had a positive impact on performance in teams with high levels of openness or emotional stability while task conflict had a negative impact on performance in teams with low levels of openness or emotional stability (Bradley et al., 2013). This is intuitively also true as a certain amount of openness to opposing views and emotional stability is necessary to manage the conflict constructively to improve team performance.

Another way of looking at personality is the Myers-Briggs Type Indicator (Myers, 1985). According to which, based on the theory of Carl Jung, Personality has four dimensions namely:

1. Introversion-Extraversion
2. Sensing-Intuition
3. Thinking-feeling
4. Judging-Perception

In the case of cross-functional Information Systems teams, Myers-Briggs Type Indicator personality types are at-least partially correlated to team performance. More balance and presence of all personality types are linked to better team performance. Here the balance has to be between the dyads Sensing-Intuition, Thinking-Feeling, Introversion-Extraversion, and Perception-Judging (Bradley et al., 1997). Further, in the case of top management teams, the type of strategy devised for the organization depends on the mix of Myers-Briggs Types of individuals in the teams. The more heterogeneous a team is in this aspect better the team's strategy (Gallen, 2009).

Team roles

Another way of looking at psychological profiles is in terms of team roles. This approach is more relevant to organizations. The most popular team role model has been that of Belbin.

As per Belbin's team role model, there are 9 team roles namely Implementer, Shaper, Plant, Monitor-Evaluator, Coordinator, Resource Investigator, Team Worker, Completer-Finisher, and Specialist. The balance of these team roles is the key to team performance. Based on this is Belbin's Team Roles Self Perception Inventory (BTRSPI) which helps identify a person's team role (Meredith Belbin, 1981, 1993). There are three underlying factors in Belbin's team roles viz. that is, knowledge of the task, the process of dealing with team members and, the problem-solving process (James Sommerville and Shirley Dalziel, 1998). This corresponds with the current classification of Belbin's team roles into task-oriented, people-oriented, and action-oriented.

There is a positive correlation between team performance and balance in all Belbin's team roles. The rank ordering of the teams according to their predicted performances and the rank ordering of the teams according to their actual performance showed that a team should be balanced in terms of members' team roles (both individually and averaged across the team) for the team to be effective and high performing (Barbara Senior, 1997). BTRSPI can be useful in building software and hardware development teams (Mazhil Rajendran, 2005). Further, this model is not limited to any industry or profession as the team role model applies to non-managers as well (S.G. Fisher, T.A. Hunter, and W.D.K. Macrosson, 2002).

Coming to other theories of team roles, some of the popular ones are:

According to Benne & Sheats's model, there are 19 functional (helpful/group) roles which are initiator/contributor, information seeker, information giver, opinion seeker, opinion giver, elaborator, coordinator, orienter, evaluator/critic,

energizer, procedural technician, recorder, encourager, harmonizer, compromiser, gatekeeper/expediter, standard setter, observer/commentator and follower. Additionally, there are 8 dysfunctional (individual) roles which are aggressor, blocker, recognition seeker, self confessor, playboy, dominator, help-seeker, and special interest pleader (Benne & Sheats, 1948).

As per another distributed leadership model, the members of a team should play 4 different types of leadership roles in the team by what phase of work the team is in. They are envisioning leadership, organizing leadership, spanning leadership, and social leadership (Barry, 1991).

According to Parker's model, there are 4 team player styles which are collaborator, contributor, challenger, and communicator. Each of these 4 styles can be played either effectively or ineffectively (Parker, 1996).

According to another model by Mumford, called team role typology, there are 10 team roles which are contractor, creator, contributor, completer, critic, cooperator, communicator, calibrator, consul, and coordinator (Mumford et al., 2006).

Objectives

1. To draw a comparison between prominent existing models of team roles.

2. To assess the strengths and weaknesses of prominent existing models of team roles.

3. To arrive at a new conceptual model of team roles.

METHODOLOGY

This is a purely conceptual study. Secondary data in the form of journal articles and books on models of team roles have been carefully studied. This data was collected from various research databases like JSTOR, EBSCO, and others. After a thorough review of the literature in the area of teamwork, prominent models of team roles were identified.

Prominent existing models of team roles were compared and contrasted with each other. Each model was carefully studied to identify underlying strengths and weaknesses. A comprehensive list of team roles with definitions from each model was put together. The list was carefully examined to identify team roles that can be merged or eliminated. This was accomplished by looking at the similarity in the meaning of keywords used to describe each team role. A new model was conceptualized by merging and eliminating team roles as well as each team role was interpreted in terms of the five-factor model of personality.

DISCUSSION AND ANALYSIS

There being five models of team roles being discussed, it is imperative to understand each of the team roles before proceeding with comparison and contrasting of models. The below table presents a brief and succinct description of team roles by grouping very similar ones -

Table 1: Summary of prominent existing models of team roles

Benne and Sheats (1948) (Only helpful roles)	Barry (1991)	Belbin (1981,1993)	Parker (1996)	Mumford et al. (2006)	Description of team roles
Initiator-Contributor	Envisioning	Plant	Contributor (partly)	Creator	The creative role, developing out of the box ideas all of which may not find practical application.
Information giver	-	Specialist	-	Contributor	Immense knowledge in one's domain.
Evaluator-critic Elaborator	-	Monitor-evaluator	Challenger	Critic	Critical and evaluative of ideas generated by others and goes against the flow of the team. Looks at the practicality of ideas.
Coordinator Gatekeeper/Expediter	Organizing	Coordinator	Contributor (partly)	Contractor	Coordinates between team members and delegates tasks and connect ideas together.
Encourager Harmonizer Compromiser	Social	Team worker	Collaborator Communicator	Calibrator Communicator	Helps maintain cordial relationships in the team. High on Empathy.
Follower	-	-	-	Cooperator	Conforms to the team and

					moves with the flow.
-	Spanning	Resource Investigator	-	Consul Coordinator	Integrating the team with the organization and outside world.
Energizer Orienter	-	Shaper	-	-	Taking stock of the current situation and energizing the team to act towards its goal.
Opinion giver	-	-	-	-	Giving opinion to team regarding values and ethics.
Information seeker/ Opinion seeker	-	-	-	-	Seeking information/ opinion From others in the team.
Procedural technician Recorder Group observer/commentator	-	-	-	-	Clerical/ Secretarial work. Routine work in the team.
Standard setter/ Ego ideal	-	Completer-finisher	Contributor (partly)	-	A perfectionist who sets higher standards for the group to achieve.
Procedural technician	-	Implementer	Collaborator (partly)	Completer	Efficient and gets work done. Often will take on work not assigned to oneself as well to get it done.

Source: Prepared by the author

It is decipherable from the above table how certain roles have a common description across models albeit different nomenclature. Also, some roles from the same model have been grouped in cases where they have very close descriptions.

Comparing and Contrasting Models of Team Roles

There being theories that have several team roles ranging from 4 roles to 27 roles, there could be considerable overlap between certain roles in some theories or omission of certain necessary roles in other theories. Each of the above team role models has used different terminologies to describe somewhat similar sets of behaviors. For example, Mumford's critic (Mumford et al., 2006), Benne and Sheats' evaluator/critic (Benne & Sheats, 1948), Parker's challenger, and Belbin's monitor-evaluator (Meredith Belbin, 1981, 1993) have almost same descriptions. Each of these roles contributes to the team by going against the flow of ideas in the team and pointing to the flaws in the ideas and plan of action. They point out the negatives and shortcomings of ideas, plans, and actions. The people who play the above role effectively are very impartial, rational, and practical.

Mumford's Consul and Coordinator are roles that form a part of the team's interface with the world outside of the team. While the Consul arranges for resources from outside and also represents the team in a favorable way to outsiders, the Coordinator is the one who brings back feedback from outsiders to the team (Mumford et al., 2006). But when a Consul is interacting with the outside world, he/she is very likely to get feedback and when a Coordinator is interacting with the outside world, he/she should represent the team in a favorable light for the success of the team. So Consul and Coordinator are like two sides of the same coin. Further, Mumford's Consul and Coordinator are very closely linked to each other and can be well condensed into the Resource investigator role by Belbin (1981, 1993) or Spanning role by Barry(1991), both of which encompass characteristics of both. Also, this type of role which is very essential in integrating a team into an organization is lacking in Benne and Sheats'(1948) model.

Mumford's Creator (Mumford et al., 2006), Belbin's Plant (Belbin, 1981, 1993), Benne and Sheats' Initiator-contributor (Benne and Sheats, 1948) and Barry's Envisioning role (Barry, 1991) are very similar to each other. Each of these roles is such that they are the idea generators of the team. They are the epicenter of creativity in a team but all their ideas may not be practical and viable. Mumford's Contributor (Mumford et al., 2006), Bebin's Specialist (Belbin, 1981, 1993), Benne and Sheats' Information giver (Benne and Sheats, 1948) are again very similar to each other. These roles are such that of an 'I' shaped individual who has in-depth knowledge in one's field and doesn't mind to be assertive in their specific area.

Mumford et al. (2006)'s Communicator is a role that is very extrovert as well as agreeable and Mumford's Cooperator is also a role very high on agreeableness. Both these roles engage in activities that help maintain peace and collaboration in the team. Mumford's Communicator combined with Cooperator is very similar to Belbin (1981, 1993)'s Team Worker. Also, Mumford et al. (2006)'s Calibrator and Contractor together make Belbin (1981,1993)'s Coordinator. Mumford et al. (2006)'s Calibrator brings together people in a team and discusses power struggles and other social issues in the group while the Contractor delegates the tasks and coordinates actions of the team. Benne and Sheats (1948)'s Encourager, Harmonizer, Compromiser, Gate-keeper, and follower also can be fit into a combination of Belbin (1981, 1993)'s Team Worker and Coordinator. Further, all these roles put together to make elements of Barry (1991)'s Social leadership role as well as Parker (1996)'s Communicator role.

Belbin (1981, 1993)'s Shaper is someone who energizes the team to move towards its goals, Implementer turns ideas into reality and Completer-finisher ensures perfection and standards in the job to be accomplished. Benne and Sheats (1948)'s Orienter and Energizer are very much linked to each other and together makeup Belbin (1981, 1993)'s Shaper. Organizing leadership by Barry (1991) has elements of Belbin (1981, 1993)'s Shaper, Implementer, and Completer-finisher. All these roles together are very similar to Parker (1996)'s Collaborator role as well.

Review of existing models

Benne and Sheats (1948)'s model of team roles has multiple roles with very close description. For example, the Group observer/Commentator and Recorder perform almost the same responsibilities of keeping track of the team's activities and decisions and making them available when called for. An Elaborator as well as Evaluator-critic both perform the responsibility of deciding whether an idea is practical and how to put ideas into use. There is a lot of overlap between roles and boundaries between roles are unclear. A major strength of this model is the Opinion giver role, which gives importance to values and ethics. Such a role has not been considered in other models.

Barry (1991)'s model of team roles has only four distributed leadership roles. Each of the roles is described such that they have multiple cognitive and behavioral aspects merged into a single role. This limits the use of this theory for predicting the thinking and actions an individual may make as a part of a team. For example, in the case of Organizing leadership role attention to detail and time efficiency are characteristics of the role which may not go well together. Some individuals playing the role may be leaning towards one of those characteristics over the other and they cannot be essentially been playing the same role. A major strength of this model is that it exemplifies how different individuals may need to take up leadership at different stages of a project.

Belbin (1981, 1993)'s model of team roles has a few roles which can easily be brought together to form a simpler model. For example, someone with a Monitor-evaluator role is very practical, impartial, and logical, such a person is also likely to be a perfectionist and has attention to detail which describes a Completer-finisher role. Both the roles require being low on agreeableness and high on conscientiousness. Also, the roles of Plant and Specialist are better thought of together as coming up with ideas without domain knowledge may not be beneficial for the team. A major strength of this model is that it is very easy to understand and use for industries.

In Parker (1996)'s model, the team player styles sometimes overlap with each other. For example, both Contributor, as well as Challenger, plays a part in raising the team's standards. The distinction between where one role ends and another role begins is not very clear. Again Collaborator and Communicator also show a great deal of overlap both being supportive and encouraging roles.

As per Mumford et al. (2006)'s model, some roles may be clubbed to form more comprehensive roles. For example, the roles of Consul and Coordinator can well be one role as they both play the part of integrating the team with the organization and the rest of the world. Creator and Contributor can well be one role as both require domain knowledge and creativity and one without the other may not be useful. The same is the case with some other roles as well. This model has the strength of being able to take elements from all the previous models and putting them together.

The proposed model

Here an attempt has been made to conceptualize a model that builds on strengths of other models and circumvents their weaknesses. The proposed model has six distinct team roles. Each of the roles can be played effectively or ineffectively and also each individual can play all these roles but, some roles come out better than others.

List of Team Roles and their short description:

1) **Creative Brain**- The role is the creative epicenter of the team and has good domain knowledge in the area of the team's goals. It creates high-quality ideas.

2) **External In-charge**- The role plays a vital part in connecting the team with the external world and integrating it with the organization as a whole.

3) **People's person**- The role is very empathetic towards the problems of team members and resolves them and motivates self and others to do their best.

4) **Administrator**- The role delegates task, manages the time and budget of the project. It makes others stay on track.

5) **Perfectionist**- The role dwells on minor details and makes sure the goal is achieved par excellence. It also makes sure that the ideas and actions of others are practical and will lead towards the best results.

6) **Ethicist**- The role makes sure that, in the whole saga of achieving the goals of the team, ethical standards and values of the organisation are not forgotten. Reinforces sustainable development.

Comparison with other models and hypothesized personality composition

The proposed model can be comprehended in terms of corresponding roles from existing models as well as from the perspective of the personality composition of each team role. The below table elaborates on the same:

Table 2: Roles in the proposed model with corresponding roles from other models and interpretation in terms of personality composition

Team role	Corresponding roles from other models [Author(role)]	Personality composition (As per the five-factor model)
Creative Brain	Benne and Sheats (Initiator contributor, Information giver); Barry(Envisioning); Belbin(Plant, Specialist); Parker(Contributor); Mumford(Creator, Contributor)	High on Openness to experience and low on Agreeableness
External In-charge	Barry(Spanning); Belbin(Resource investigator); Mumford(Consul, Coordinator)	High on Extraversion and high on openness to experience
People's Person	Benne and Sheats(Encourager, Harmonizer, Compromiser); Barry(Social), Belbin(Team worker); Parker(Collaborator, Communicator); Mumford (Calibrator, Communicator)	High on Extraversion and high on Agreeableness.
Administrator	Benne and Sheats(Coordinator, Gatekeeper/Expediter, Energizer, Orienter, Procedural technician); Barry(Organizing); Belbin(Coordinator, Shaper, Implementer);Parker(Contributor, Collaborator);Mumford(Completer, Contractor)	High on Conscientiousness, high on extroversion
Perfectionist	Benne and Sheats(Standard setter/ Ego ideal, Evaluator-critic,Elaborator) Belbin(Completer-finisher, Monitor-evaluator); Parker(Challenger); Mumford(Critic)	High on Conscientiousness and low on Agreeableness with moderate neuroticism
Ethicist	Benne and Sheats (Opinion giver)	Balanced personality with empathy towards weaker sections of society and the environment.

Source: Prepared by the author

The hypothesized personality composition plays an important role here as most of the older team role models are not in agreement with the five-factor model of personality, which is the most well studied and popular model of personality in present times.

CONCLUSION

Each of the reviewed models had some core strengths unique to each of them but the existing models of team roles are all very similar to each other in many of the aspects, with one or the other aspect missing in each of the models. With organizations increasingly relying on teams for day to day functioning, being able to predict team performance is very important (Devine et al., 1999). The existing models present with duplication of roles as well as the overlap between roles which may prevent these models from being useful in the accurate prediction of team behaviors. An attempt has been made to conceptualize a new and comprehensive model, which will leverage the unique strength of each of the reviewed models and builds on them to improve their weaknesses.

LIMITATION AND STUDY FORWARD

The model of team roles conceptualized in this study needs to be empirically tested to strengthen and refine it. The proposed model needs to undergo field studies that can verify the external validity of the model. Further, this study has paved the way for the design of new instruments/inventories to identify the team roles as per the newly conceptualized model.

AUTHORS CONTRIBUTION

This study is a part of the doctoral thesis of the first author, Divya Nair, and the second author, Dr. N Meena Rani, is the guide of the doctoral programme. The study was conceptualized and the manuscript was developed by the first author and the study was supervised and the manuscript was revised by the second author.

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