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**Do Individual Differences Impact the Type of
Social Networks People Form?**

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**DO INDIVIDUAL DIFFERENCES IMPACT THE TYPE OF SOCIAL
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ABSTRACT

This paper tries to understand how people with different personality types will be attracted towards forming/ joining different types of networks.

The first half of this paper looks at the two different types of network structures, namely closure networks and entrepreneurial networks. A review of literature has been done to try and understand why and how such networks are formed. As a part of this review, principles like homophily and heterophily have been studied and different network trajectories like goal oriented trajectories and serendipitous network trajectories, which lead to the formation of a network has also been looked at.

In the second part of the paper, the paper looks at various personality factors, mainly the Big Five personality factors and the literature on self-monitors. After discussing the characteristics of each of these personality types, and reviewing the process of network formation, the author hypothesises a linkage between the different personality factors and network types. So, by understanding the personality type/ characteristics of an actor, .e.g. by knowing which factor he/she scores high on, one should be able to predict what type of network the actor will be more prone to joining/ forming.

Keywords: Personality types, Closure networks, Entrepreneurial networks, Network trajectories

INTRODUCTION

The literature on social networks is deeply divided in two schools; one school believes that the structure of the network to be of utmost importance with absolutely no regard for the individuals that it consists of, while the other school believes in the importance of individuals over the structure of a social network. The individualistic school has lately been marginalised. A strong theme in social network research has been that students of social structure need not be concerned with individuals or individual-level variables. From a radical social structural perspective, the study of individuals is "a dead end" (Mayhew, 1980) that has been superseded by the analysis of the structure of relations (Leinhardt, 1977; Wellman and Berkowitz, 1988; White, 1992). According to Mayhew, "Structuralists and individualists are asking different questions. They are attempting to explain different things. . . . no shared language and no line of communication unites them in any common discourse" (1980: 339). Structural and individual approaches, therefore, are ostensibly incommensurable (Kilduff and Krackhardt, 1994).

In relation with this divide, an analogy often suggested is with language (Kilduff and Tsai, 2003). Language (like a social network) connects people together, permits communication and transactions, and is a social fact, which has a reality independent of any of the actors connected by the language. Radical structuralists point out that individuals engage in constant action (speaking the language) even though none of these individuals can be said to have contributed to the structure in which their actions are embedded (i.e. none of them created the language they speak). Language (like other social structures) exists, it is argued, as a supra-individual institution, relatively independent of any single individual's motivations or attributes. Thus, given this view, structuralists have tended to ignore the possibility that actors' attributes, cognitions or personalities shape social networks. Structuralists have tended to 'shun the "person" construct as polluting' (White, 1992: 3), they tend to believe that sociologists have been 'misled.... into studying the attributes of aggregated sets individuals rather than the structural nature of social systems' (Wellman, 1988: 15). But on the other hand, one must realize that 'language' has existed before the current speakers were born, and will outlive them, while a specific social network may radically change its structure if even one of its

actors depart. The social capital of a network lies in the ties between individuals and not with any of the individuals, the breaking of any tie, means an irreplaceable loss of social capital. While it is also true, that it is often the collection of these ties that cause the strength of a social network (e.g. clans).

On the other hand psychologists have totally ignored the structural aspect of networks. Despite apparent relevance of psychological approaches for understanding why some people build different networks from other people, or why some people can exploit network resources more effectively than others, psychologists tend to ignore the existence of social structures altogether (Kilduff and Tsai, 2003).

So, despite this divide, we see that the structure of the network, and the individuals making it, are equally important parts of a social network, each in some manner affecting the other.

This paper attempts to understand individual differences, and how and whether these differences actually lead to different people forming different types of networks.

In this paper, the author mainly refers to two different types of social networks the flat and cohesive networks also known as cliques or closure networks (Coleman, 1988) and the flat and sparse networks, also known as entrepreneurial networks (Burt, 1992). An attempt has been made to identify different aspects on which individuals differ, look at different theories that would help us understand the whys and how's of social networking i.e. to understand why people cluster together in certain manner the author looks at the theory of homophily and heterophily, and to understand how network trajectories are formed also looks at the theories of goal directed network trajectories and serendipitous network trajectories. Pre-existing work on types of personalities and network structures has also been reviewed. On the basis of these theories, an attempt has been made to hypothesis which type of individual would be attracted to which type of network.

SOCIAL CAPITAL IN DIFFERENT TYPES OF NETWORKS

This section is an introduction to the two structures of social networks, namely closure networks and entrepreneurial networks (networks held together by people occupying the structural hole positions).

Social Capital in Closure Networks

Coleman (1988) is associated with the description of the structure of social networks as a closed form, more popularly known as the closure network structure. He strongly believes that a certain type of social structure will facilitate the formation of social capital, such that it both aids and accounts for the different outcomes at the level of individual actors. The four pillars on which he forms his thesis of a particular network structure facilitating the formation of social capital is 'Obligation', 'Expectations' and 'Trustworthiness of structures' and 'Norms and Effective Sanctions'.

Obligation and expectation

Coleman gives the example of the Khan El Khalilli market in Cairo to practically illustrate how obligations and expectations are built in social networks. In this market, the boundaries between merchants are difficult to decipher for an outsider. Although specialized in selling particular merchandise, merchants would be very resourceful in providing the customer with whatever he or she wanted, by either, procuring and selling a neighbouring merchant's wares in his own shop or by leading the customer to another merchant's shop in the same market. Each merchant ensured the sales of his and his fellow merchants through this method. So, when a merchant leads a customer to another merchant, he is doing an obligation to the other merchant, while having the expectation that the other merchant would do the same for him when required.

These obligations that one creates, is often not paid back immediately. Scholars have studied various communities where in people perform a favour for their fellow community member, without being asked (Ik, a poverty ridden African tribe) (Turnbull, 1972) or people perform a favour but do not want it to be immediately repaid (Kwakiutl

tribe in Pacific Northwest) (Mauss, 1954). From an economic perspective, one might find this to be an irrational act. But in practice, rational actors too do find value in creating these obligations. As a rational self interested actor, one realises that if one were to perform a favour for a fellow community member, the cost involved for him at that point would be very low, as compared to the benefit the community member would reap. As a result of performing this favour, one holds in their hand something similar to a credit note, which they can call back when they need a favour which would hold more value for them at a future point in time, than the cost incurred in providing the initial favour. But this entire belief that the favour will be returned is based on a very important factor: Trustworthiness of the social environment.

Trustworthiness of the social environment

As mentioned earlier, trustworthiness of the social environment is critical for individual actors in the network, because it is on the basis of this trust that they provide a favour to another member, without any contractual guarantee of the favour being returned. Coleman (1988) has very well depicted the importance of trust among network members when he gives the example of the wholesale diamond market in New York City, where merchants during a negotiation, hand over a bag of stones to a fellow merchant to inspect at his leisure, without any formal insurance. Coleman is able to attribute this behaviour to the close ties that the diamond merchants share with each other through the informal networks like family, community and religious affiliations that they share. If any merchant were to cheat the other, he would lose face not only professionally, but he would also lose family, religious and community ties. So we see here, how the strength of the ties makes transactions possible in which trustworthiness is taken for granted and trade occurs with ease.

Often, when the ties of the network are very close, one who performs an obligation does not expect an immediate return, and sometimes, does not even expect the return to come from the individual for whom the obligation was performed. When an individual performs an obligation in a closed knit society, it means that when the individual requires

a favour to be returned, an actor (irrespective of whether he received the favour the first time) in the network who is in the best position to fulfil the favour will do so.

Norms and Effective Sanctions:

We see such behaviour in closed knit communities because there exist unarticulated fragile norms and effective sanctions that bind the members of the network in such a way that they behave in a socially acceptable manner. One of the especially espoused norms in such societies is the belief that one should forgo self-interest and act in the interests of the collectivist (Portes, 1998; Putnam, 1993; Uzzi, 1997). A norm of this sort, reinforced by social support, status, honour, and other rewards is the social capital that builds young nations, strengthens families by leading family members to act selflessly in the ‘family’ interest, facilitates the development of nascent social movements through a small group of dedicated, inward-looking, and mutually rewarding members, and in general leads persons to work for the public good (Coleman, 1988). In some cases these norms are internalized, while in others they are enforced by external rewards and sanctions. These norms are a very important aspect which holds a society together.

Closure of Social Networks

One property of social relations on which effective norms depend is what is called ‘Closure’. Closure is a property in which every individual is connected directly or indirectly to most other members of the social network. It forms a necessary but not sufficient condition for the emergence of effective norms is action that imposes external effects on others. Norms arise as an attempt to limit negative external effects or encourage positive ones. Unless closure exists in the network, all actors are not connected to each other, thereby; any sanctions that could be applied by combined pressure by the network on a defaulting party cannot be applied.

Insert Figure 1 about here

A figurative depiction of “A’s social network” is shown in figure 1. The dots in the figure represent people and the lines represent the ties. The solid lines are direct strong ties, while the dotted lines are weak or indirect ties. Strong ties are defined as those held between friends and family, while weak ties are held in relations between acquaintances and friends of friends (Granovetter, 1973). Granovetter (1973) characterizes the strength of a tie as being the combination of the amount of time, the emotional intensity and the intimacy between actors. Here, we see that A is either connected through strong or weak ties to all of the members in his or her network. Another characteristic to notice is that most of the other members too are connected to each other through strong or weak ties, i.e. they are either friends or acquaintances. Thus we can see that closure of the social structure is important not only for the existence of effective norms but also for another form of social capital: The trustworthiness of social structures that allow the proliferation of obligations and expectations. Defection from an obligation is a form of imposing a negative externality on another. Yet in a structure without closure, it can be effectively sanctioned, if at all only by the person to whom the obligation is owed. Reputation cannot arise in an open structure and collective sanctions that would ensure trustworthiness cannot be applied. Thus, we see that closure creates trustworthiness in a social structure.

For example, even if we look at the Indian and other Asian communities, especially their business communities, we find that a complex interplay of religion, reputation and repeated transactions are a fundamental reason in the dominance of certain communities in the business environment. The interconnections between the various actors in these communities are strong given the informal and business ties they share; their relations have a multiplex nature, which allows them to have a smooth working relationship with a high degree of trust and low transaction costs (Iyer, 1999).

So we repeatedly see that, the closed network connections reinforce trustworthiness in the structure, reduce transaction costs, give actors access to resources that would have been otherwise out of their reach, and ensure smooth and effective transactions. A sense of obligation to the society and a sense of reciprocation to others in the network, and the need to give back to the network are high among closed network members. Thus

Coleman (1988) proposes that it is only a closed network that can give significant competitive advantages to actors within the network.

Other than these four pillars, the actors within the social network also experience certain constraints and drawbacks given the cohesive structure of this network. Some of these drawbacks are:

Lack of autonomy

One main factor which was responsible for the reduction in uncertainty is the norms that guide the behaviour of members of the network and the threat of imposition of sanctions on them. The downside of this factor is it snatches away the autonomy of actors within a cohesive network to act out of their own volition. Portes and Sensenbrenner (1993) describe how ethnic entrepreneurs are often suffocated by the particularistic demands posed by the same cohesive social ties purportedly responsible for initially facilitating the access to essential resources.

Redundancy of information

Cohesion and structural equivalence are two indicators of redundancy (Burt, 2000). As we saw in the closure network diagram (Figure 1) for actor 'A' we saw that most of the individuals were linked to one another through direct or indirect means. This signifies that information flow in this network will be fast, and everyone in the network will have the same information. Thus, actor 'A' will not gain any competitive advantage by interacting with many of the actor members in his or her network, as the information communicated by one will be the same as that communicated by all.

Structural Equivalence i.e. equivalent contacts – contacts who link an actor to the same third party – have the same source of information and therefore provide redundant informational benefits.

Lock in of actors

A cohesive network requires one to give up the thought of self-benefit, and act for the collectivity. This leads to a loss of flexibility on the part of the actors. Given the limited time and energy, an obligation to maintain relationships that are no longer advantageous to an individual may hinder the ability to cultivate new relationships necessary to maintain the value in the manager's social capital. The obligation that the actor feels towards the network and social norms of the network, may stop him or her from breaking ties with the network, for the fear of getting a tainted reputation (Raub & Weesie, 1990).

Inertia for looking at new sources

Often we see those who have long term partners have strong bonds of mutual understanding and trust that greatly facilitates cooperation between them (Gulati, 1995). As a result there develops inertia for actors to look for other partners. Thus, this strong bond may also serve as a filter for information and perspectives reaching the actors, generating a cognitive lock – in that isolate them from the outer world (Uzzi, 1997)

The Social Capital of Entrepreneurial Networks

We saw in the case of closure networks, accessibility to resources that exist within the community becomes available to all within it. The relationships being very strong, this kind of network can be very influential and resourceful for its members. Although there is tremendous trust among the members, as they believe strongly collectivistic feeling over self-help feeling would gladly help a fellow network member or strongly influence another member to help them, they would be at a loss if the required help/ resource/ information/ knowledge are beyond their network. Membership ties are very strong within closed social network structures and just as weak with networks beyond the social structure. So, given the closed characteristic of their network, they would not be aware as to where they could source the requisite information/ resource from. Thus, the very strength of a closed social structure - its closeness - becomes its greatest disadvantage.

The network structure that is touted by Burt (1992, 2000) to overcome this drawback is the structure possessing structural holes. As we saw information and resources flows

freely within closed networks. A structural hole is a position which exists between atleast two such networks. The person occupying this position is connected to people across different networks. As a result, they are able to access information which exists within multiple groups and have the power to transmit this information across different groups. As we saw in the earlier section, most closed networks remain isolated from other networks existing in the same time period, they are more inward looking, and do not focus significantly on the activities of other groups. An individual occupying the structural hole has the ability to broker the flow of information between people and control the form of projects that bring together people from opposite sides of the hole (Burt, 2000).

Insert Figure 2 about here

As we see here, the person placed in the position 'B' holds the position of the structural hole in this network. He is connected to three other networks through his relationship with multiple actor(s) within these cohesive networks. He acts the buffer between these multiple networks.

This position in literature, is considered to be a very powerful position, they are considered to have a competitive advantage over actors who are members of a cohesive network, because they are said to have access to multiple and varied information sources. The quantity and quality of information they are exposed to is wide and varied. Given this wide network they are better aware of opportunities available in the environment than those who belong to cohesive networks. They are not bound by norms of their network, they work as autonomous agents. Research on subjects like job attainment (Marsden & Hurlbert, 1988), show that individuals holding the position of the structural hole, get or are able to help others in their job search or in getting access to jobs that would have otherwise not been known to a member of a cohesive network. Research on organizational innovation (Tsai & Ghoshal, 1998) too emphasises the importance of such a network as this network provides a superior combinative capacity to the individual bridging across multiple networks. Such a person would be in a better position to display

entrepreneurial intuition as described by Crossan, Lane and White (1999). As described by them an entrepreneurial intuition is a form of the first stage 'Intuition' through which individuals and organizations learn. Intuition as defined by them, is a stage, individuals are able to make novel connections across dissimilar situations and come up with novel solutions. A person who primarily acts as a bridge to multiple networks will have an access to varied experiences of his or her multiple contacts. Thereby the chances of such a person being able to connect dissimilar situations and come up with novel solutions to problems will be much higher than an individual who is purely a member of a cohesive network and is conditioned to think in a uni-dimensional manner. Knowledge creation and transfer is another benefit such heterogeneous networks can provide (Regans & Zuckerman, 2001; Regans & McEvily, 2003; McFadyen & Cannella, 2004). Another significant power that a person holding the position of the structural hole has is the power of reference. A person in such a position can utilize his or her ties across networks to identify new opportunities, generate novel ideas, control and transfer information etc. he or she can also use his network to put multiple actors from different isolated networks in touch with each other for their mutual benefit. If the deal between two of his disassociated network members is successful then it would generate goodwill for him from both the members. Batjargal and Liu (2004) have in their research depicted the importance of such a social network in ensuring investment in new ventures by venture capitalists, where an earlier client of a venture capitalist is able to put a new entrepreneur in touch with the right venture capitalist, thus ensuring a profitable investment relation for the two of them.

So, as compared to an actor belonging to a cohesive network, a person who acts like the bridge connecting multiple networks, has more autonomy, access to information, less restrictive constraints like norms, easy mobility across networks and access to people from multiple networks.

THEORIES OF SOCIAL NETWORKS

This section describes theories of social networks, which pertain to why certain types of clustering are seen among people and how social network trajectories are formed. We will look at the theories of homophily, heterophily, goal directed network trajectories and serendipitous network trajectories. These theories will throw some light on the basic nature of actors within a network that motivate them towards forming certain kinds of networks.

Understanding the ‘Whys’ of network clustering

Homophily

The principle of homophily underlies many processes of social interaction. The basic idea is simple: People like to associate with others who are similar. Similar others are helpful in evaluating one’s ideas and abilities, especially when important consequences are at stake (Festinger, 1954). The bases upon which people choose similar others are, of course, many. Among the most common bases of social interaction are demographic factors like sex, ethnicity, religion and age (Kilduff and Tsai, 2003).

But individuals are likely to belong to many sub-groupings e.g. a person may simultaneously be a women, Asian, Hindu and Indian. She may find herself drawn to many such sub-groupings. Simmel (1955) and Blau (1984) claim that the more affiliations to such groups a person has, the more diverse and counteracting the pressure on individuals, the weaker the hold of any one group on its members. More memberships therefore tend to equal more options and freedom for individuals. On the other hand, for each of us, there exists an intersection of cross-cutting social circles that define our individuality. In the study of social identity and friendship relations, the results show that the relative rarity of social category (like say gender or race) promoted member’s use of that category as a basis for a social identification and friendship formation. Thus, for racial minorities, race was a stronger category for social identification and friendship than

gender, whereas for the white majority, gender, not race was a stronger category (Mehra et. al., 1998)

The literature on homophily pressures in organizations shows that, in general, people tend to interact with similar others, and this tendency is particularly marked for relationships like friendship, that are more expressive than instrumental (Blau, 1977; Ibarra, 1992) and in which, therefore, pressure towards balance are likely to be the greatest. Heider (1958) developed the notion of balance theory as a theory of cognitive consistency. It mainly states that people prefer balanced relationships, i.e. they want their friendship to be reciprocated, and for their friends to be friends of each other (transitivity). This theory also postulates that people prefer to interact with others with whom they share a strong attachment to one or more shared characteristics like ethnicity or gender, and that in the case of any relation being unbalanced (not reciprocated or no transitivity observed) the person concerned will suffer a feeling of discomfort and will act to change the unbalanced relation to balanced, either by changing the other person's attitude or by breaking off the relationship.

Literature also does come out with support for the ideas proposed by balance theory and of the theory of homophily. As predicted by balance theory, researchers have found that organizations are often characterized by segregated networks composed of people similar on some salient and valued variables such as gender, race or ideology. In a newspaper organization, Brass (1985) found two informal, segregated networks, with men choosing male partners 75% of the time and women choosing female partners 68% of the time. In another organization, White (1961) found that given their differing ideologies, organizational social relations among 16 members of upper management fragmented into two clique like groups, with each group having more of a negative feeling with the other group than positive. In this particular case the implications were detrimental to the organization. In their research, Krackhardt and Hanson (1993) found that problems of fragmentation was common in organizations, some employees in a department spent all their time talking among themselves, thus neglected cultivating relationships with rest of their colleagues in other departments, they also found evidences of some employees who

would communicate with members of only other departments and not among themselves. The result is that discrete groups of informally linked employees form bonds of communication and trust. Absence of strong ties in these groups, will allow little tacit knowledge or expertise to flow (Hansen, 1999).

Heterophily

Given the strong tendencies to cluster together, it may seem strange to suggest that there could be circumstances where the opposite may occur i.e. Heterophily.

The heterophily theory has a long history in social sciences. Simmel (1950) discussed about a stranger who lived in the heart of a society, yet retained allegiance to a different society. The stranger is a role that is both near and remote from the group within which they dwell and the groups within which they maintain distant relations. The stranger is also like a trader, bringing new news, inventions and intelligence into relatively closed economic groups. The stranger is more mobile than those among whom he/she dwells, tending to have less strong ties of kinship and so on compared to others. The heterophily perspective suggests that new information and unusual resources tend to flow from relative strangers who may be members of other social organizations, or who may be brokers joining groups that are themselves disconnected.

Understanding the ‘How’s’ of Network Clustering

Goal Directed Network Trajectories

Goal directed trajectories develop around specific goals that members share. The whole network is built to achieve the goal which the actors share. Success is measured against this goal. In these kinds of networks we often find the emergence of an administrative entity that acts as a broker to plan and coordinate the activities of the network as a whole. This entity can be a member of the network itself or a separate actor with a specialized coordinating role. Human and Provan (2000) found that it is the role of this entity to help build the network, coordinate and manage its activities, support network firms and network level goals, and provide a centralized location for performing key activities of the network. The structure seems to be very centralized, having a leader at the core

periphery. The growth of the network will depend on the success, failure or discovery of new goals for the network. It has a clear boundary. Actors are mostly homogeneous, and the possibility of structural hole is minimized. The emphasis in these types of networks is on network wide trust.

Serendipitous Network Trajectories

In these types of networks, network trajectories develop haphazardly from the interactions of individual actors. There are no network level goals that actors within the network share. In serendipitous network processes, individual actors make choices about whom to connect with, what to transact and so on, without guidance from any central network agent concerning goals or strategy. Actors form ties or partnerships based on their own interests. These networks are slower to form and grow through dyadic ties; they are usually long lived and survive even in times of change. They are usually decentralized structures, with no single leader. The possibility of structural holes existing in this type of network is very high. The actors in this type of networks are more diverse. The emphasis in these networks is more on interpersonal trust at a dyadic level than at a network wide level.

Linking the theories:

Thus, we see that people who have homophilic tendencies to form networks have may have certain characteristics or goals in mind, which creates an affinity for them to form networks with people with a similar mindset. Although literature says that goal oriented trajectories to network formation would create networks which are short term, as they cease to exist when the goal is fulfilled, unless a new goal is envisioned; we could also see that if the goal of the actors is to interact with others who are similar to them e.g. in their race, religion, gender etc. such networks would be long lasting ones. Looking at the networks of people with homophilic tendencies, we will find that their orientation towards forming networks is very goal oriented. As a result, there would be a high amount of transitivity in the relations in these networks, with everyone being closely linked to one another. People with these types of tendencies would mainly form closed, cohesive networks.

Hypothesis 1: Homophilic tendencies of actors will be positively related to their forming cohesive networks

Insert Figure 3 about here

People who have a heterophilic tendency seem to be more open with regards to the formation of networks; their networks may have a diverse set of people in it. Their network formations are guided more by dyadic relations than predetermined categories or affinities to them. We find that over time the relations these people will form are motivated by different reasons, relations will be loosely coupled. Expectations of transitivity in relations governed by this behaviour may be low. Thus we may find that people with such tendencies, are more active in creating their own network structures. Since there is no pre-guided goal which makes them choose their network partners, we would find that their partner's propensity to interact with different types of people will depend on the need of the hour. This serendipitous trajectory to network formation will link them to a diverse set of people, who may not be connected to each other, or sparsely connected. As a result, we may find such networks to be rich in structural holes

Hypothesis 2: Heterophilic tendencies of actors will be positively related to their forming entrepreneurial networks.

Insert Figure 4 about here

PERSONALITY CHARACTERISTICS AND NETWORK STRUCTURES

In this section, look at the empirical studies correlating personality characteristics with network structures. The empirical work connecting the 'Big 5' personality factors with social networks are very few. As a result, looking at various empirical studies, the author has attempted to understand the characteristics of each of these personality factors, and in the literature reviewed earlier in the paper, the author has studied the different types of networks, and why and how people form them. By understanding the literature in these

two areas i.e. personality types and process of network formation, the author has tried to hypothesis about the linkages between personality factors and network types. So, this paper aims to contribute to literature by trying to link the most popularly used personality factors defined as the 'Big Five' factors to network literature. There is some existing literature on the linkage between personality types with network literature, but that looks at 'self-monitors' and not at specific big five personality factors. To give a comprehensive view of the literature in the field of personality and networks, the literature on self-monitors and networks, and the author's interpretation of the literature understanding it in the context of why and how an actor forms a network, has also been discussed in this section.

Empirical Studies

Vodosek (2003) in his work on personality and the formation of social networks, has conducted an empirical longitudinal study (data collected at the beginning, middle and end of the semester), gathering information on the personality type and networks of 228 undergraduate students enrolled in an introductory organizational behaviour course at a large Midwestern business school. His attempt was to shed light on how personality is associated with people's network relationships with one another.

He focused on three types of network relationships, strong ties, weak ties and negative ties (Granovetter, 1973; Labianca, Brass and Gray, 1998). The strength of a tie is a function of the amount of time two individual spend together, their emotional intensity, their level of mutual confiding and their degree of mutual support (Granovetter, 1973). Negative ties are characterized by negative affect, conflict and mutual avoidance (Labianca, Brass and Gray, 1998).

To examine the effects of personality, he drew on a general framework for the taxonomy of personality traits that has received considerable empirical support. Personality researchers have found five replicable personality factors, referred to as the "Big Five" (Goldberg, 1990, 1992). The five factors are known as Extraversion, Agreeableness,

Conscientiousness, Neuroticism and Openness to Experience. Vodosek (2003) found that other than extraversion, none of the other personality factors played any significant role in the formation of social ties. It was also found that, agreeableness was marginally related to strong ties; the more conscientious people had lesser negative ties than lesser conscientious people, and openness to experience was associated with a large number of negative ties.

Although we get an idea about the kind of ties these personality types would form, we still cannot be sure of the type of network structures they would be more prone to form.

So, we look more closely at the characteristics of these personality types and try to hypothesis about the type of structures they would form.

Extraversion

Extraversion refers to the extent to which an individual is outgoing, active, and high-spirited.

Individuals with high levels of extraversion prefer to be around other people most of the time and are assertive, active and talkative. They like excitement and stimulation and tend to be cheerful in disposition. They are upbeat, energetic, and optimistic.

In contrast, individuals with low levels of extraversion tend to be introverted, reserved, and serious. They value privacy and prefer to be alone or with a few close friends (Costa and McCrae 1992).

Extraversion has been shown to be related to a host of phenomena related to interpersonal interaction and close relationships. Extraverts tend to have better social skills than introverts (Riggio 1986) and attain higher status in social groups (Anderson, John, Keltner, and Kring 2001). Extraverts also find social situations more rewarding than introverts because they are more sensitive to the rewards inherent in most social situations (Lucas, Diener, Grob, Suh, and Shao 2000). Ashton, Lee, and Paunonen (2002)

demonstrated that a central feature of extraversion is a tendency to behave in ways that attract or hold social attention and to enjoy these behaviors.

Characteristics and results found in various studies:

Extraverts approach others more easily and engage more easily in social interaction (Diener, Larsen, and Emmons 1984).

In a study of proactivity in the organizational socialization process, Wanberg and Kammeyer-Mueller (2000a) found that extraversion was associated with relationship building, a behavior that refers to initiating social interaction by organizational newcomers.

Wanberg et al. (2000b) found in a study of job-seekers that extraversion was associated with both higher levels of contacting friends, acquaintances, and referrals for job leads and use of traditional job-search methods.

Extraversion is also associated with less loneliness (Stokes 1985) and positive relations with others (Schmutte and Ryff 1997).

Extraversion is associated with interpersonal facilitation, a set of behaviors aimed at improving interpersonal relations and interactions with others in the workplace (Van Scotter and Motowidlo 1996; Hurtz and Donovan 2000).

Among middle school children, extraversion tends to be associated with both peer acceptance and friendship (Jensen-Campbell et al. 2002), and in the workplace, extraversion is a predictor of performance for occupations that involve a high level of social interaction (Barrick and Mount 1991).

As we see from the characteristics and empirical work done on extraversion, we find that people with this type of personality are very open to socializing and interacting with others. Many a times people choose to interact only with others with whom they have

some common characteristic because they are scared of rejection or from being ridiculed. But in the case of a person who is an extrovert, such fears would not be very strong. He/she would not be averse to interacting with a diverse set of people, for either general social interaction, getting to know others better, or to fulfill any particular need. Such a person will be much more comfortable with dealing with variety, uncertainty and change. He/she would be just as comfortable with interacting with a homogenous group of people, but that thought would not govern his/her actions. Such a person may on the other hand feel caged in very constraining closed networks, as they would feel the loss of autonomy and they may fear getting locked-in in a closed network structure.

***Hypothesis 3:** Extroversion will be positively related to a person forming entrepreneurial networks.*

***Hypothesis 4:** Extroversion will be negatively linked with a person forming a closure network.*

***Hypothesis 5:** Extroversion will be negatively related to people clustering towards other similar actors based on demographic or other such binding categories (e.g. race, gender, religion, ideology)*

Agreeableness

Individuals with high levels of agreeableness tend to be courteous, flexible, trusting, good-natured, cooperative, forgiving, empathetic, soft-hearted and tolerant. They tend to be eager to cooperate and to avoid conflict.

Individuals low in agreeableness tend to be hardheaded, direct, skeptical, proud, and competitive (Costa and McCrae 1992).

Agreeableness is associated with positive relations with others (Schmutte and Ryff 1997).

In contrast to individuals low in agreeableness, individuals high in agreeableness see less conflict in their interactions with others, like others more, and rate others higher in terms of global social desirability (Graziano et al. 1996).

Characteristics validated by various studies:

Agreeableness is associated with both peer acceptance and friendship among middle school children (Jensen-Campbell et al. 2002).

Agreeableness predicts the satisfaction of newlyweds (Botwin, Buss, and Shackelford 1997).

Low levels of Agreeableness predict spousal complaints about a set of negative behaviors linked to marital dissatisfaction (Buss 1991).

Agreeable people are also more likely to engage in behaviors of interpersonal facilitation in the workplace (Van Scotter and Motowidlo 1996; Hertz and Donovan 2000).

Through these empirical findings, we can assume that people who are of a personality type that is classified as high on agreeableness would be keen on ensuring that they are accepted by their network. As is seen by the empirical data above, agreeableness was associated with both peer acceptance and friendship in middle school children. By nature they seem to be eager to cooperate and to avoid conflict, courteous, flexible, trusting, good-natured, cooperative, forgiving, empathetic, soft-hearted and tolerant. Thus, it seems that they would very easily gel in networks with people with whom they have something in common. They do not seem to be the type that would be very comfortable in uncertain situations, or situations that need aggressive action or initiation on their part. Given their adjusting and flexible nature, they would be more malleable towards accepting the norms of their network and abiding by them, rather than try to seek ties with a diverse set of people.

Hypothesis 6: Agreeableness will be positively related to a person forming closure networks.

***Hypothesis 7:** Agreeableness will be positively related to people clustering towards other similar actors based on demographic or other such binding categories (e.g. race, gender, religion, ideology)*

***Hypothesis 8:** Agreeableness will be negatively linked with a person forming a closure network.*

Conscientiousness

Conscientiousness refers to the extent that an individual is dependable, careful, thorough, responsible, organized, efficient, disciplined, good at planning, and has a high will to achieve.

Individuals high in Conscientiousness tend to be well-organized, have high standards, and strive to achieve their goals. Conscientiousness is also related to higher degrees of interpersonal facilitation (Hurtz and Donovan 2000).

Individuals low on this dimension tend to be easygoing, not very well organized, and sometimes careless (Costa and McCrae 1992).

Validation of characteristics through research:

While conscientiousness has been shown to be associated with superior performance in the workplace across different occupations (Barrick and Mount 1991; Salgado 1997) there is not much empirical evidence available for the relation between conscientiousness and the degree to which individuals engage in social interaction or relationship building.

Wanberg et al. (2000) in their study of job-seekers found that conscientiousness was associated with both higher levels of contacting others and use of traditional job-search methods.

A person who is conscientious by nature will display goal oriented behaviour. Given their high need for achievement and high level of planning, he/ she would either form closed networks which are goal oriented, and thus short term. In these cases they would tend to

display a tendency of homophily, where in they would associate with others who have the similar goal in order to ensure the fulfillment of the task at hand, but not because of demographic reasons. They would equally easily associate with a diverse set of individuals, following a serendipitous network trajectory, to fulfill either their goals, or need for that instance in time.

Hypothesis 9: Conscientiousness will be positively linked with forming closure networks

Hypothesis 10: Conscientiousness will be positively linked with forming entrepreneurial networks

Hypothesis 11: Conscientiousness will be negatively related to people clustering towards other similar actors based on demographic or other such binding categories (e.g. race, gender, religion, ideology)

Neuroticism

Neuroticism refers to the extent to which an individual experiences and displays negative affects such as anxiety, sadness, embarrassment, vulnerability, depression, anger, hostility, guilt, and disgust and is prone to have irrational ideas, is able to control his or her impulses, and copes with stress (Costa and McCrae 1992). Neuroticism has been associated with a number of phenomena related to interpersonal interaction and close relationships.

For example, Neuroticism has been shown to be associated with the negative qualities of relationships (Henderson, Byrne, and Duncan-Jones 1981) and with feelings of loneliness (Stokes 1985). Neurotics are also less prone to engage in interpersonal facilitation (Van Scotter and Motowidlo 1996; Hurtz and Donovan 2000). They tend to believe that they are not attractive to others and are fearful of rejection. Consequently, they tend to reject others in order to protect themselves from rejection (Sangster and Ellison 1978).

Validation of characteristics through research:

Neuroticism is also negatively correlated with status in male social groups, as measured by the number of peer relationships (Anderson et al. 2001).

Karney and Bradbury (1997) found that Neuroticism is negatively related to levels of marital satisfaction of newlyweds.

From these characteristics we can assume that neuroticism is more of a dysfunctional personality attribute. People displaying such attributes may find it difficult to adjust in any kind of network.

Hypothesis 12: Neuroticism will be negatively linked with forming closure networks

Hypothesis 13: Neuroticism will be negatively linked with forming closure networks

Openness to Experience

Individuals with high levels of openness to experience typically display imagination, curiosity, originality, and open-mindedness.

In contrast, individuals low in Openness to Experience tends to be down-to-earth, practical, traditional, and set in their ways (Costa and McCrae 1992).

McCrae (1996) suggested that openness may have the most central influence on social and interpersonal phenomena among the five personality factors, since people who are curious and open-minded have an interest in getting to know others. Despite McCrae's (1996) proposal, the literature does not offer much empirical evidence for openness' relation to interpersonal phenomena.

Validation of characteristics through research:

There are at least three exceptions, though:

Shaver and Brennan (1992) observed a positive relation between Openness and the longevity of college students' dating relationships.

Openness also predicts the marital satisfaction of newlyweds (Botwin et al. 1997) and

Low levels of Openness predict spousal complaints about a set of negative behaviors linked to marital dissatisfaction (Buss 1991).

This empirical evidence suggests that once relationships are formed, openness is positively related to satisfaction and stability in the relationship.

People with 'Openness to Experience' seem to be more open to questioning and drawn to experimenting and establishing new and diverse relations. If they are bound by a closure network, they may soon find it exhausting because they would be tied down by the norms and other constraints of the network, and lose autonomy on their own actions. Given their nature, the chance that they would follow the serendipitous trajectory to network formation would be high, thus the chances of them being members of a sparse and loosely connected network is high.

Hypothesis 14: Openness to Experience will be positively related to a person forming entrepreneurial networks.

Hypothesis 15: Openness to Experience will be negatively linked with a person forming a closure network.

Hypothesis 16: Openness to Experience will be negatively related to people clustering towards other similar actors based on demographic or other such binding categories (e.g. race, gender, religion, ideology etc.)

Self-Monitors and Preference to Network Types

Another way we can classify personalities of people are in the form of 'self monitoring'. Self monitoring is the active construction of public selves to achieve social ends (Gangestad and Snyder, 2000). Individuals differ in the extent to which they are willing and able to monitor and control their self expression in social situations. Some people are able to change their image such that they present the right image to the right audience, while others insist on being themselves no matter how incongruent their self expression may be with the requirements of the social situations. People who guide their behaviour based on the social cues given from others are called 'high self-monitors' while those

whose behaviour is guided exclusively by their own inner attitudes and emotions are called 'low self-monitors'.

The characteristics of high self monitors are such that they are more likely to resolve conflicts through collaboration and compromise than low self monitors (Baron, 1989). They tend to emerge as group leaders (Zaccaro, Foti and Kenny, 1991), particularly in situations calling for high levels of verbal interaction (Garland and Beard, 1979). They are skilled at social interactions (Furnham and Capon, 1983). They are good at pacing conversations (Dabbs et. al., 1980), more active in conversation (Ickes and Barnes, 1977) and tend to talk more about the other person than about themselves (Ickes, Reidhead and Patterson, 1985).

Given their characteristics, high and low self-monitors tend to inhabit different social worlds (Snyder, Gangestad and Simpson, 1983; Snyder and Simpson, 1984; Snyder, Simpson and Gangestad, 1983). The ability to tailor behaviour to a range of different social situations makes a high self monitor belong to a number of distinct groups. They maintain flexibility and make little emotional investment in relationships. Friends are chosen based on how closely their skills match activity domains. High self monitors will tend to develop relations at work with a distinct set of people; using their flexible identity to play different roles in different groups, they tend to develop relations across groups. They are very likely to bridge social worlds connecting otherwise unconnected people. Low self-monitors on the other hand tend to chose friends on the basis of liking, and they like to be with the same set of friends across activity domains (Snyder, 1987; Snyder, Gangestad and Simpson, 1983). Low self monitors prefer to belong to a clique within which they as individuals can express a their true characteristic disposition (Snyder, 1987: 68-69)

Mehra, Kilduff and Brass (2001) too found that personality does predict the social structure, high self-monitors tend to occupy central positions in social networks. They also found that higher self-monitoring scores predict higher betweenness centrality in the friendship networks. Betweenness centrality is the extent to which an actor serves as a

potential 'go-between' for other pairs of actors in the network by occupying an intermediary position on the shortest path connecting other actors (Brass, 1985). Thus, we can see that high self-monitors would tend to occupy positions in networks redundant with structural holes. They also found that the longer people stayed in a network, a high self-monitor became more central to the network, but they could not find the same results for low self-monitors.

One main reason that we observe this kind of a difference in the type of structures different people seem to be occupying is because they have different motivations. High self-monitors might seek, above all, to 'create public images.... that connote social status'. Low self-monitors on the other hand may be interested in 'close social relationships in which they and their partners can be trusted' (Gangestad and Snyder, 2000: 547). As a result they built different types of social capital. High self-monitors focused in constructing social worlds that function as "effective instruments of status enhancement" and low self-monitors focused on constructing social worlds that supported their reputation as being "genuine and sincere people" (Gangestad and Snyder, 2000: 547).

Burt, Jannotta and Mahoney (1998) too from their research were able to identify distinct personality traits and characteristics that differentiated people in the two different network types. They classified networks into two major types given the extent to which they were constrained. They measured network constrain by measuring variables like network size, network density and network hierarchy. Discounting hierarchy, or looking at only flat networks we see that network density would be a major differentiating factor in classifying a network as a closure network or an entrepreneurial network. The denser a network, more constraints it puts on its members, such networks can be classified as closure networks, while a sparse flat network would be an entrepreneurial network. A hierarchical network is a network that is organized around one contact. Such networks too are greatly constrained.

Burt, Jannotta and Mahoney (1998) found that people who belonged to an unconstrained network were people who had an entrepreneurial characteristic. They were authors of their own social world, they have the ability to negotiate ambiguity and conflicting demands, develop relations with disconnected people and be comfortable being an outsider. These people thrive on advocacy and change. He also found that such people connect disconnected groups, and removing the entrepreneurial ties with these groups would cause the groups to drift apart. They have a strong desire to be in a position of authority; they are very independent by nature, enjoy convincing others and are greatly concerned with accuracy of information. Thus, we can say that people occupying positions of a structural hole would be very proactive by nature. On the other hand they found people belonging to constrained networks, as being drawn to stability. They wish to see themselves as stalwarts of their organization, who add value through the infrastructure and stability they provide. They emphasize conformity and obedience, they prefer to stick to original plans, are averse to change and risks. They thrive on social support of their close colleagues. They seek security, are obedient and conforming insiders, they are comfortable living in a world created by others. So here to we find people in constrained networks (closure or hierarchical networks) seem to find comfort in homogeneous groups, and display homophilic tendencies, while those in unconstrained networks (entrepreneurial networks) are much more proactive in creating their own social networks, and seek diversity in their networking relationships, they display distinctively heterophilic tendencies.

CONCLUSION

We see that people who have a propensity to forming an entrepreneurial network do indeed have a different disposition as compared to those who form closure networks. It is also said that even if a person who does not have the disposition of a person who is proactive, flexible etc. occupies the position of a structural hole, he will not be able to take advantage of the opportunities that such a position present (Mehra, Kilduff and Brass, 2001).

To sum it up, we could say that an entrepreneurial network would be formed by actors who take a serendipitous route to network formation. Such actors would in all likelihood be prone to having heterophilic tendencies. Actors, who would be prone to heterophilic tendencies, would also in turn have very specific characteristics which are as stated in figure 5.

Insert Figure 5 about here

At the same time a closure network will be formed by actors who take the goal oriented trajectory to network formation. These actors would in all likelihood have homophilic tendencies. Actors with such tendencies would have some very distinct characteristics as follows:

Insert Figure 6 about here

We would find that this kind of a relationship holds true in circumstances with no constraints. If an actor with a proactive disposition is forced into a social setting or organization where there are certain strong cultural norms like men interact only with men and women interact only with women etc. then we may find that despite their disposition, they may end up exhibiting homophilic tendencies. At the same time, if certain other constraints, like job requirement, forces a person who is most comfortable in a homogenous group, to interact with people of various diverse groups, we may find them exhibiting heterophilic tendencies. But given no external constraints, people who form entrepreneurial and closure networks have distinctly different characteristics.

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APPENDIX

Figure 1: Closure Social Network Structure

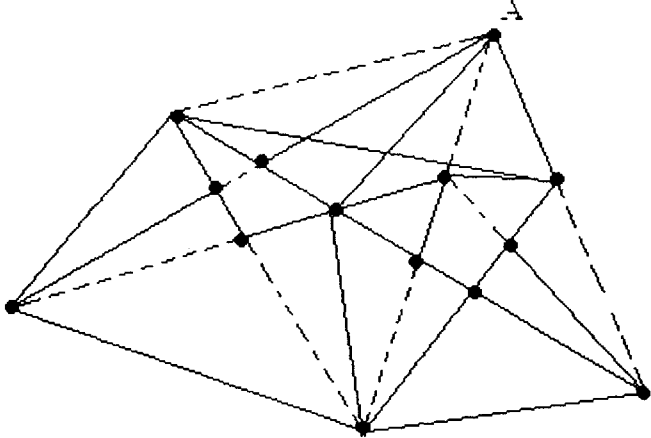


Figure 2: Social Network Depicting the Structural hole Position

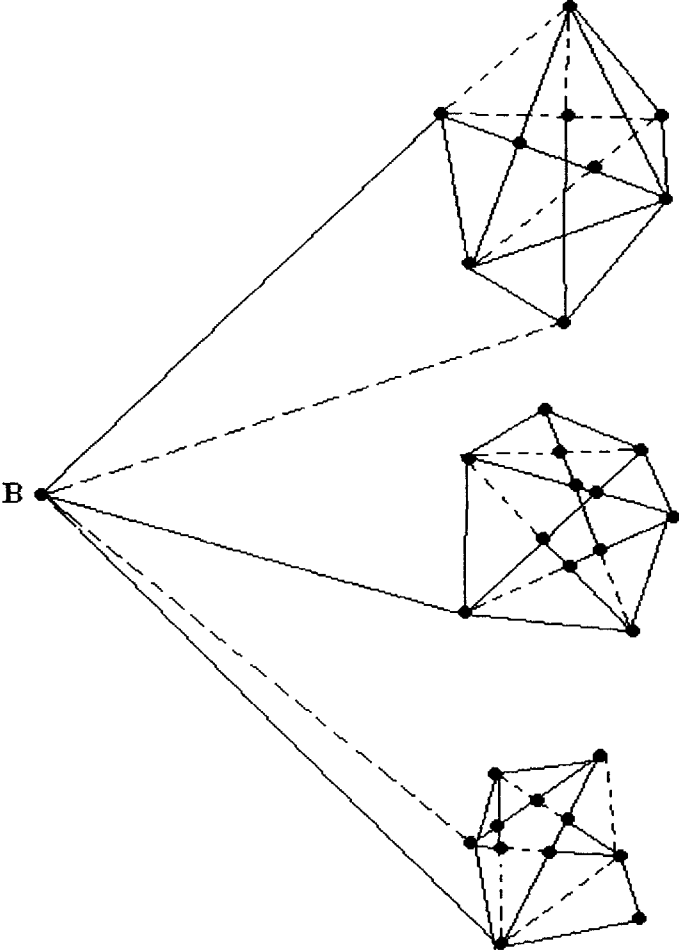


Figure 3: Network Structure and trajectory likely to be chosen by an actor who has Homophilic tendencies

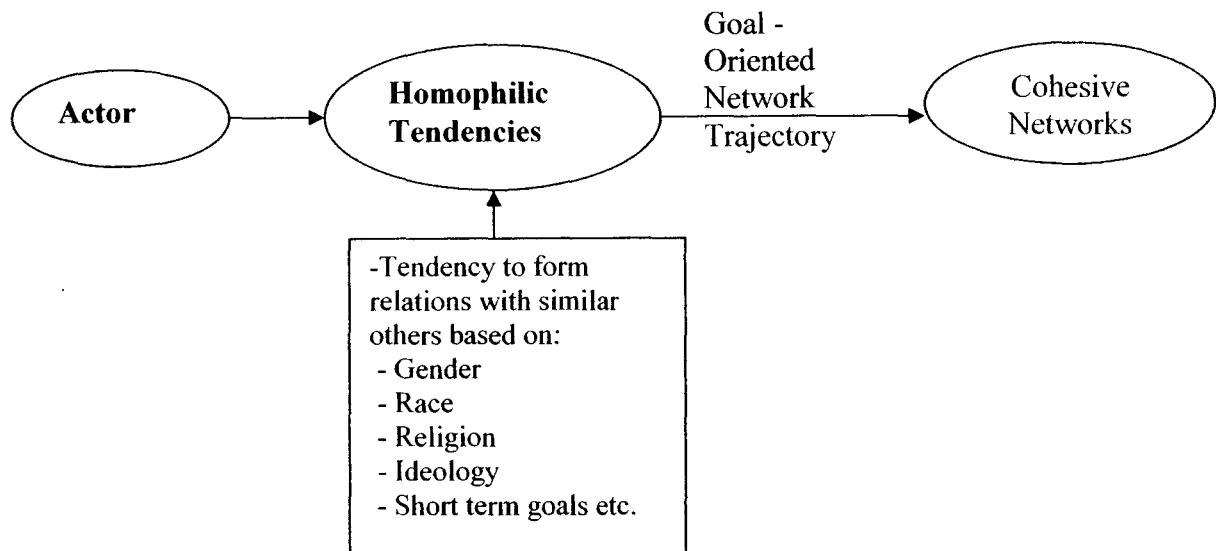


Figure 4: Network Structure and trajectory likely to be chosen by an actor who has Heterophilic tendencies

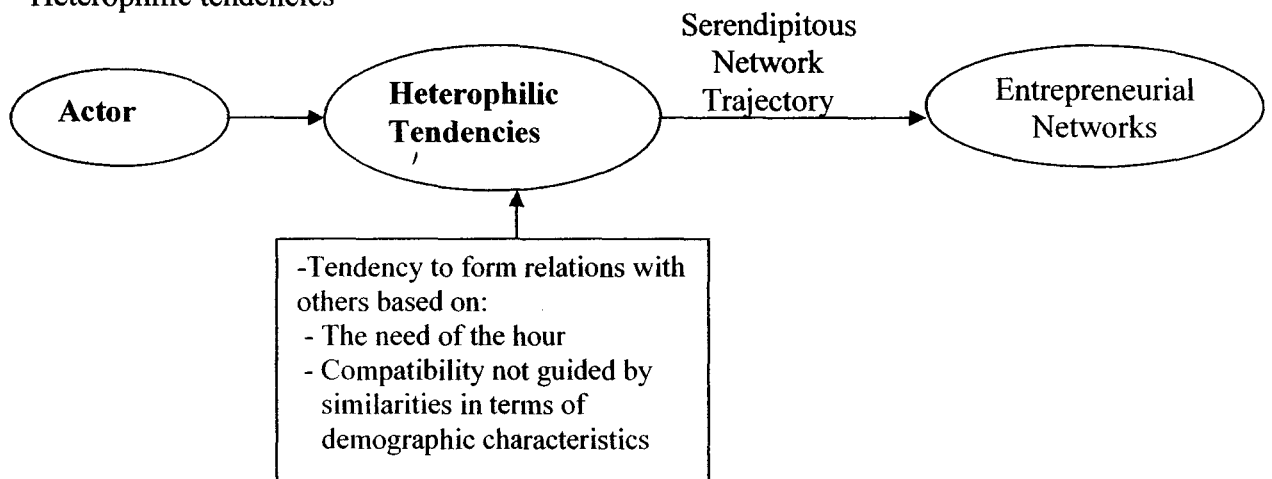


Figure 5:

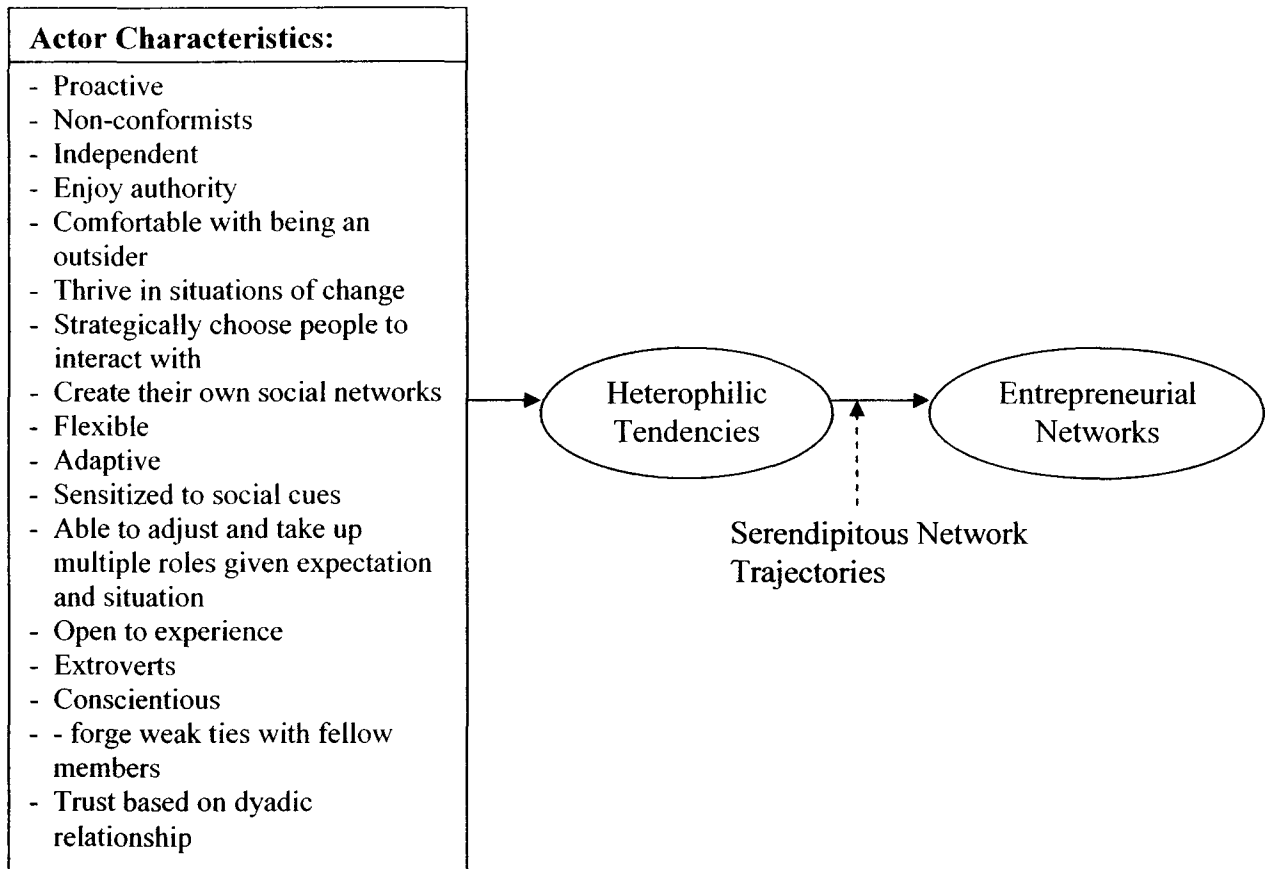


Figure 6:

