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Transformation of Academic Atmosphere: The Role of Social Networks

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Internal network among the faculties and the commercial industries in the academia often depicts a vivid picture of various processes and resources related to their professional activities as such. This paper explores the various networks among the faculties and administrations within the context of academia using a combination of social network analysis. In doing so, it uses a qualitative research method to study the impacts of various links within the network using social network analysis. Theories of Ibarra's model of personal networks of women and minorities in management, the principle of homophily (the tendency to bond with similar others), and Finkelstein's typology of colleagueship functions are used as the conceptual guideline. The study shows what kind of networks influences departmental characteristics, individual characteristics, colleagueship functions, and networking behaviors and the exchange of resources among distinct entities within the universities in Bangladesh.

Keywords: *Academic atmosphere, social network, transformation, commercial networks, developing countries.*

Introduction

Today, the interaction between the developer of theoretical knowledge and manufacturers of goods and services underlies the progress of both business and education in a recursive way (Rosenberg, 1982). Academics are increasingly being urged to contribute to economic growth and competitiveness and policy-makers involved in tertiary educational institutions, have put in place initiatives pointed to the rate of commercialization of university level skills(Feller, 1990). Often, these policies encourage universities and firms to interlock in partnerships and personnel transaction (Siegel et al. 2003). Few initiatives seek to build universities' information transfer capacities by supporting recruitment and training of technology change agents (Woolgar, 2007). Hence, the growing involvements of universities in commercialization raise issues concerning the very nature and mission of the institutions itself (McKelvey & Holmén 2009). Very often, it is seen that universities have embraced commercial and social advancement along with the conventional missions of teaching and research as a novel mission (Etzkowitz, 1998). Complying with this new task, universities are indeed, becoming part of a unified system that incorporates industry and government, and underpins modernization and economic development (Etzkowitz & Leydesdorff, 2000). The academic environment, for certain, is shifting in an entrepreneurial way (Etzkowitz, 2003). The entrepreneurs, on the other hand, are also engaging in universities with their commercial schemes that are demonstrating ambidexterity in their ability to produce visible economic outputs (Ambos et al. 2008).

Various trends of the present day Business world in Bangladesh indicate a thriving objective among entrepreneurs to be involved in education ventures and generate some revenues. An increasing numbers of university teachers are becoming academic entrepreneurship; hence, diffusion of networking has

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become eminent. The entrepreneurial success in the academic arena drives towards the development of network technology while organizational learning drives advantages in these technological contraptions. These organizational learning is often associated to the procedures and organizational arrangements for classifying, preserving and administering the network among the education industry and other industries. However, there are potentially some detrimental effects of these trends on the formation of scientific knowledge, and there are fears that academic atmosphere is being instrumentalized and even manipulated by industry (Krimsky, 2003). Many universities seem to have enhanced 'knowledge businesses' that are centered not so much on forming public goods for nations but rendering services to specific stakeholders (McKelvey & Holmén, 2009). One of the inherited risks of this trend is to constitute a shift from basic education towards more applicable skills and less academic freedom (Behrens &Gray, 2001), lower levels of analytical ability among academics (Agrawa l& Henderson, 2002) and a slowing-down of open education dissemination (Rosell & Agrawal, 2009). Very often than not, the theoretical understanding may be immediately inapplicable, nevertheless, it often inspires practical considerations and benefits interactive contact with entrepreneurs (Stokes, 1997). Avoiding the knowledge enterprise that develops theories may lead the academic trends toward a socially undesirable path.

Interplays between universities and commercial industries take multiple forms with the networking channels that may range from inter-organizational relationships to spin-off companies. Among these channels, engagement in collaboration is very frequent (Perkmann&Walsh, 2007). Having confirmed the empirical scenario of collaborative forms of interaction, than the question arises what kind of industries more frequently are tied up with the tertiary education. On one hand, it could be debated that collaborative forms of engagement in the knowledge economy develop different, a less formalized form of network that may be governed by dynamics similar to commercial industries. On the other hand, growing collaborative engagement may be consistent with a scenario where academic atmosphere adopts mechanical logics and become active participants in commercialization (Etzkowitz, 1998). However, it may be administered by a logic that deviates from the idealized norms of the university education. However, the collaboration not necessarily needs to be negative in its consequences. Commercial industry affiliation with educational institutions can be acquainted with the traditional values of the academic system. For example, collaboration with industries as such may benefit academics' research enterprises to form relationships with information users and to mobilize resources to complement public research funding. Further, acquisition of funds for graduate students, obtaining laboratory equipment, gaining insights appropriate to academic investigation and supplementing research funds are some of the examples through which the educational institutions can be benefited (Murray, 2002). In this paper, we seek the clarification on the source of collaboration by exploring the entrepreneurs' motivation to engage in educational ventures that may indicate the overtly commercial forms of entrepreneurial behavior in the education industry in Bangladesh.

Theoretical Framework

The study attempts to integrate several discrete bodies of research on social networks, networking in academic arena and *homophily* to develop a theoretical framework. Nohria and Eccles (1992) imply that "all organizations are in important respects social networks and need to be addressed and analyzed as such" (p. 4). The primary question in applying network analysis for organizational research is, how to define network and what constitutes a network. A network is a group of actors connected by the social relationships (Brass, Galaskiewicz, Greve, & Tsai, 2004). A network perspective concentrates on interpersonal relationships and the "structured patterns of interaction" between the individual actors in a given cultural or organizational context (Brass, Galaskiewicz, Greve, & Tsai, 2004, p. 795). Social network analysis recognizes the actors to be "simultaneously analyzed to discover new insights concerning social structure and interaction" (Kilduff& Tsai, 2007, p. 13).Any Network is constructed around the interactions

of its members (Salancik, 1995). Hence, action and interaction become embedded in networks of social arrangements and associations that assist in the attainment of goals, and construct meaning in people's lives (Scott & Davis, 2007). There are several ways to determine who is included in a particular network. An egocentric network incorporates all sorts of relationships and a single person, the center of the network, maintains all the contacts. Networks may also be defined in terms of the social relations and interactions that take place within particular organizational boundaries (Kilduff & Tsai, 2007). The measurement of a network's boundaries is, as Scott (2007) implies, "the outcome of a theoretically informed decision about what is significant in the situation under investigation" (p. 54). In this study, networks are considered as those sets of relations that endure between the entrepreneurs and the tertiary educational institutions.

Social networks have tangible consequences for people's experiences and careers. Networks incorporate both formal and informal interactions, and in a way, these are interchangeable (Monge & Contractor, 2003). Formal networks can be discerned through organizational structures and hierarchies that are based on company policies, institutionalized programs, and formal procedures. Any formal network has public, official, and have apparent boundaries. Conversely, Informal networks have "personal, voluntary, and have fluid boundaries not formally governed or officially recognized" (McGuire, 2000, p. 403). Different arrangements of these two network models drive to different implications and outcomes (McGuire, 2000). Often, the formal network is "at best a highly idealized image of organizational reality. At worst it is pure ideology, bearing little direct relation to internal organizational networks" (Lincoln, 1982, p. 8). Informal networks oftentimes render information, support, advice, and other resources that may not be distributed through the formal networks. The capacity to cultivate social relationships and develop mutual trust is critical to securing access to network resources. A preference to interact with others perceived to be comparable to themselves usually directs people's behavior. This preference, that is often called, *homophily*, can appear in both access and barriers to network resources. As Burt (1992) addressed, "we are sufficiently egocentric to find people with similar tastes attractive" (p. 12). Perceived similarity often drives to improve communication, the predictability of behavior, and trust (Brass, Galaskiewicz, Greve, & Tsai, 2004). People form relationships with others like them as a mean to measure themselves and "pressure to adopt opinions, to acquire skills or to strive for outcomes such as promotions" (Goethals & Darley, 1987, p. 49).

The need for a framework that consolidates individual and structural factors to examine networking requirements, strategies, and consequences depends on the premise that "organizational and individual factors affect network structure indirectly by shaping available alternatives, costs of alternatives, and the benefits individuals seek from their interaction networks"(Ibarra, 1993, p. 77). The organizational factors incorporate formal organizational context and interaction dynamics that "precludes or makes possible various kinds of social contacts" (Ibarra, 1993, p. 66). The structural constraint influences *homophily*. Therefore, inherent preference for interaction with comparable others is restrained by the availability of similar others. Organizational context further influences networks by determining the interaction dynamics among the network affiliates. "Personal networks are shaped by stereotypes, attributions, and biases that are bolstered by structural arrangements" and restrict the construction of associations within the network (Ibarra, 1993, p. 66). Interaction dynamics strengthen perceptions of social variations and minimize the perceptions of similarity, hence diminishing the plausibility that network relationships can form. However, "structure is not all-determining. Individuals play an active role in structuring their social networks to achieve their goals and maximize the benefits they seek" (p. 74). The individual agents that discursively affect networks incorporate career factors as well as communication styles and adjustments. These individual factors construct the specific advantages that people desire to obtain through their personal networks. Therefore, organizational determinants drive to structural constraints on network

preferences, while individual factors develop network benefits inquired. These two factors direct toward network development strategies and, therefore, personal network structures and retrieval of network privileges.

Each network member has insights, although those are very much constrained through the departmental connections. Perceptions of the network might comprise the opinions concerning its potential application in regard to the faculty member to research opportunities. This interplay between individual and structural context results in what Ibarra (1993) termed "choice-strategy tradeoffs" or "network development dilemmas" (p. 74).Networks form in organizations due to individuals' interactions in the setting of social structures (Salancik, 1995). "At any given time, the structure of an organization is providing access to and control of valued resources, while behaviors to acquire and strategically use those resources are occurring" (Brass & Burkhardt, 1993, p. 444). Both personal traits, such as interest in teaching and structural aspects, such as 'disciplinary culture' play vital roles to develop networking strategies. However, the risk of centering exclusively on a macro or structural perspective lies in disregarding individuals' actions and the consequences on networks while a stringently micro perspective neglects the structural context, possibilities, and constraints within which individual actions occur (Ibarra, Kilduff, & Tsai, 2005). Therefore, "all [organizational] phenomena are simultaneously micro and macro," or influenced by both structural and individual determinants (Krackhardt & Porter, 1985, p. 242). The two perspectives need to be combined to get a vivid understanding of networks and a greater integration of the individual and structural approaches are required (Stevenson & Greenberg, 2000). Networking strategies emerge in response to network expansion dilemmas. Through the networking strategies, the persons develop their network structures to secure network benefits. A functionally differentiated network comprises homophilous relationships that render meaningful benefits and classify the group of relationships that provide conducive benefits (Ibarra, 1993).

McPherson and Smith-Lovin (1987) distinguish between two kinds of homophily. The individual perspective, *choice homophily*, concentrates on individual preferences for interaction with comparable others. The structural perspective, *affected homophily*, is based on the structural constraints on possible interactions narrow the personal preferences. Academic departmental characteristics serve as structural constraints that form networking aims and strategies. Hence, networks works as the "structures of constraint and opportunity negotiated and reinforced between interacting individuals" (Kilduff & Krackhardt, 1994, p. 5) and sources of "differential access to resources and power" (Brass, Galaskiewicz, Greve, & Tsai, 2004, p. 807). Therefore, Homophily in academia works as a source for shared identity and trust, and enhances interaction. Mutual trust is essential for friendships, productive mentoring relationships, collaborative effort, and the exchange of delicate information (Geleta, 2004). Gerstick, Bartunek, and Dutton (2000) referred to academia as "an occupational realm where true inclusion is treasured – and jealously guarded" (p. 1027). Reskin (1978) described academic networking as "scientists and scholars who collaborate with, encourage, inform, evaluate, reward, compete with, and befriend co-workers." Blau (1974) emphasized the significance of interpersonal relationships in the progress of knowledge, and admitted that relationships within an academic arena are "structured by the personal preferences that bring together scientists who find in one another trait congenial with their own" (p. 401). However, sometimes "associations within the specialized community are generally impervious to social differences among individuals" (p. 404). Very often than not, socio-demographic characteristics, "influence behavior indirectly by limiting or enhancing one's access to resources and opportunities" (p. 16).

The actor's attempts to fulfill their needs through networking and social exchange construct the structure of interaction and contribute to social structures and constraints. These structures create "differences in

power, prestige, and privilege, which in turn further constrain future exchange opportunities" (Cook, 1990, p.116). Hence, an integrative approach to network research need to be formulated "to deal adequately with the link between actors and structures, the first requirement is a theoretical framework which incorporates both concepts" (Cook, 1990, p. 113). However, organizational social network researchers are relatively free from disciplinary dogma and can obtain from the structural and psychological traditions to ordain answers to significant questions (Kilduff& Tsai, 2007, p. 70). Studies on faculty members have also recognized the necessity to bring together different perspectives. The presence of networking strategies in relationships with companions, superiors, and subordinates in organizations in academic careers are also very effective (Finkelstein, 1981).

Methods

Network researches mostly rely on a single source of data (Mehra, Kilduff, & Brass, 1998), which can be considered as a limitation since it does not integrate quantitative, qualitative and graphical data in network analysis to produce "thorough and in-depth analysis" (Kilduff & Tsai, 2007). Social network data may identify types, strengths and directions of the existing relationships but do not depict actors' strategies of action (Stevenson & Greenberg, 2000). Social network analysis clearly shows what networks exist, who are the actors in those networks and in some case, how do the actors interact, but it does not point out the reason behind the actors' actions. Even though network analysis clearly describes how the actors are linked to a particular network context, additional data from other sources are required to know the reasons behind the actors' experiences and choices. By integrating multiple research methods in a study, we can ensure the confirmation and corroboration of data, better analysis and scope of inclusion new insights and different line of thinking (Miles & Huberman, 1994). Multiple-case sampling ensures the validity and strength of the findings in qualitative research (Miles & Huberman, 1994). By including five cases, and therefore by studying the network of five private universities this study depicts a picture how the private universities are connected to the industries. By understanding the network of the five private universities this study explores the effects of the industrial practices on the academia.

Exploring phenomena of organizations at various levels of analysis was the major purpose of using social network analyses. We see the first application of this in the early decades of the twentieth century. The Hawthorne Studies of factory workers first used sociograms to map the interactions among employees (Kilduff & Tsai, 2007). Since the network analysis has been applied to various social roles and groups, it is the most popular method of analysis in different fields of study like management, sociology, mathematics and biology. Social network analysis considers the ties among the actors of a network and studies the various influences on those ties. Its main focus is on relationship among the entities and the patterns and implications of those relationships (Wasserman & Faust, 2008). Content analysis is a commonly used qualitative research technique. Content analysis is a technique for efficiently depicting written, spoken or visual communication. It provides a quantitative (numerical) depiction. Many content analyses involve media - media - print (daily papers, magazines), TV, video, motion pictures and the Internet. Suitable media includes any media that can be recoded and then evaluated. Content analysis is likewise used to dissect new material recorded by the data analysts, and to group open-ended responses gathered through interview or survey questions. Quantification allows us to portray the material in a way that is conceivably dependable and legitimate. We group the information into categories and finally summarize them.

Using network analysis, researchers are capable of observing behavioral patterns and relationships that are not obvious to the people from within the networks (Galaskiewicz, 1996). Network analysis provides meaningful insights into decision, actions and their outcomes (Adler & Kwon, 2002) (Fischer & Pollock, 2004). In addition to that, this analysis allows researchers to model relationships and to observe the

structure of a group along with how that structure influences both the group and the individuals within it (Wasserman & Faust, 2008). This study has selected some private universities of Bangladesh as the area of interest to seek the relationships these universities have with the various industries. Network analysis was used to determine network relationships among different universities and industries. Results from the network analysis depict a vivid image of the private university networks, their positions in those networks and their relationships with the industries.

The study intends to explore entrepreneurial networks of the private universities of Bangladesh by plying qualitative content analysis and social network analysis. First, the study seeks the insights into the ways that structural and organizational factors shape developing private universities practices. Second, it investigates the initial development of network patterns existing among private universities and industries; how those industries affect network outcomes. Finally, it tends to observe whether and how technology aids in networking with the private universities of Bangladesh. In doing so, the study uses a mixed methods approach by integrating qualitative research methods and network analysis research methods. The qualitative component consists of content analysis related to the node organizations as well as secondary data from different sources. Network analysis is done based on data collected various sources to produce scores and sociograms that are based on carefully selected network measures. We integrate both qualitative and quantitative research methodologies by ensuring richness of data along with depth of analysis as they complement each other.

Findings & Discussions

International Standard Industrial classification (ISIC) of all economic activities, Rev 4, classified all the industries under twenty-one broad categories (United Nations, 2016). They are (1) Agriculture, forestry and fishing, (2) Mining and quarrying, (3) Manufacturing, (4) Electricity, gas, steam and air conditioning supply, (5) Water supply; sewerage, waste management and remediation activities, (6) Construction, (7) Wholesale and retail trade; repair of motor vehicles and motorcycles, (8) Transportation and storage, (9) Accommodation and food service activities, (10) Information and communication, (11) Financial and insurance activities, (12) Real estate activities, (13) Professional, scientific and technical activities, (14) Administrative and support service activities, (15) Public administration and defense; compulsory social security, (16) Education, (17) Human health and social work activities, (18) Arts, entertainment and recreation, (19) Other service activities, (20) Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use and (21) Activities of extraterritorial organizations and bodies. Under these 21 broad categories, they have classified all the industries of economic activities into 99 subcategories. Bangladesh also follows the Bangladesh standard industrial classification of all economic activities, 2009 (BSIC, 2009) which is based on ISIC rev 4 (United Nation, 2016). The classification structure is identical to the international standards but some classes and groups have been added according to requirements of Bangladesh. In terms of structure, methodology or application of rules, there is no deviation from the international standards but some lower level codes are added. BSIC is being used in all statistical inquiries since 2009. Bangladesh Bureau of Statistics (Industry and Labor Wing), Statistics and Informatics Division, Ministry of Planning is responsible for planning and maintenance of the classification.

GDP of Bangladesh is grouped under three major categories – (1) Agriculture, (2) Industry and (3) Service. Bangladesh Bureau of Statistics indicates that for the fiscal year 2014-2015 the share of GDP in agricultural sector was 15.51%, the share of GDP in industrial sector was 28.15% and the share of GDP in services was 56.35% (Bangladesh Bureau of Statistics (BBS), 2016). Compared with the data of the year 2010-2011, we see that the GDP share of agriculture was 17.71%, GDP share of industry was 26.8% and GDP share of service was 13.96%. This indicates that the GDP share of the industry is growing steadily

over the last few years. The economy of Bangladesh is dependent on export of the products. The textile and ready-made garment industry of Bangladesh is the second-largest in the world. The other industries worth mentioning are pharmaceuticals, food processing, steel, pulp and paper, jute, automotive parts, fertilizers, ceramics, shipbuilding, leather goods, electronics, construction materials, natural gas and renewable energy. The GDP share of agriculture mostly comes from cash crops like jute, rice, tea, cotton, wheat and sugarcane. Moreover, Bangladesh ranks fifth in global production of fish and seafood. Other than these, the telecommunication industry has seen substantial advancement over the last few years. In addition to that, the software industry is also rapidly growing. Both government and private sectors are taking initiatives to encourage people to get involved in the software industry and thus expand the industry in near future.

The relations between industry and university have undergone remarkable changes over the past decades. These changes were brought about by the changing roles of the universities and other institutions sharing knowledge. Over the centuries, universities have been considered as institutions where knowledge is shared. From the inception, the major role of the faculty members was to impart knowledge, but eventually, research works also became part of their role along with teaching students. Beside these two roles, a third role was added when entrepreneurial universities were introduced through the transformation of scientific knowledge into enterprise competence (Martini & Rossi, 2010). Along with the government financed universities, private universities were established. Since they are mostly non-profit institutions financed by various private organizations, their policies may have independence from some of the state policies, but they may not have independence from the organizations that are the sources of their finances. As a result, the education provided by the university is being considered as service, though there was a lot of debate about this (Ng & Forbes, 2009). Thus, the higher education was commercialized. Students are the consumers here and they get enrolled in universities in order to gain knowledge.

The number of students going for higher education was quite low previously. The number of students going for university education increased recently because of the rapid development of the private sectors. Till the nineties, university level education in Bangladesh was offered to the students only by the government financed universities, where the number of available seats was limited. Thus a very small portion of the students completing their Higher Secondary or college education could manage to get admitted to those universities through tough competition as the student to available seat ratio was very low. In order to reduce this gap between demand and supply of tertiary level education, many private universities were established. These private universities were established based on the Private University Act 1992 and was amended as Private University Act 2010 (Bangladesh Government, 2010). According to Bangladesh Bureau of Educational Information and Statistics, there were 34 public universities in Bangladesh. (Excluding National University -NU and Open University) and 78 private universities in Bangladesh (BANBEIS, 2014). The number of students enrolled in private universities was 27245 in 2001, which has increased to 853712 in 2014. As of March 2016, there are total 91 UGC approved private universities, among which 80 are operational and 11 got approval (UGC Bangladesh, 2016).

We have used UCINET and NETDRAW to visualize the network in private universities of Bangladesh. UCINET is a software package for the analysis of social network data. It is used along with NETDRAW which is a network visualization tool. The visualization process in UCINET requires a lot of trials and errors in adjusting the properties to come up with meaningful graphs, which are useful for analysis of the network in the private universities of Bangladesh. The first graph we generated was a group of nodes that cannot express any insights at all.

Figure-1

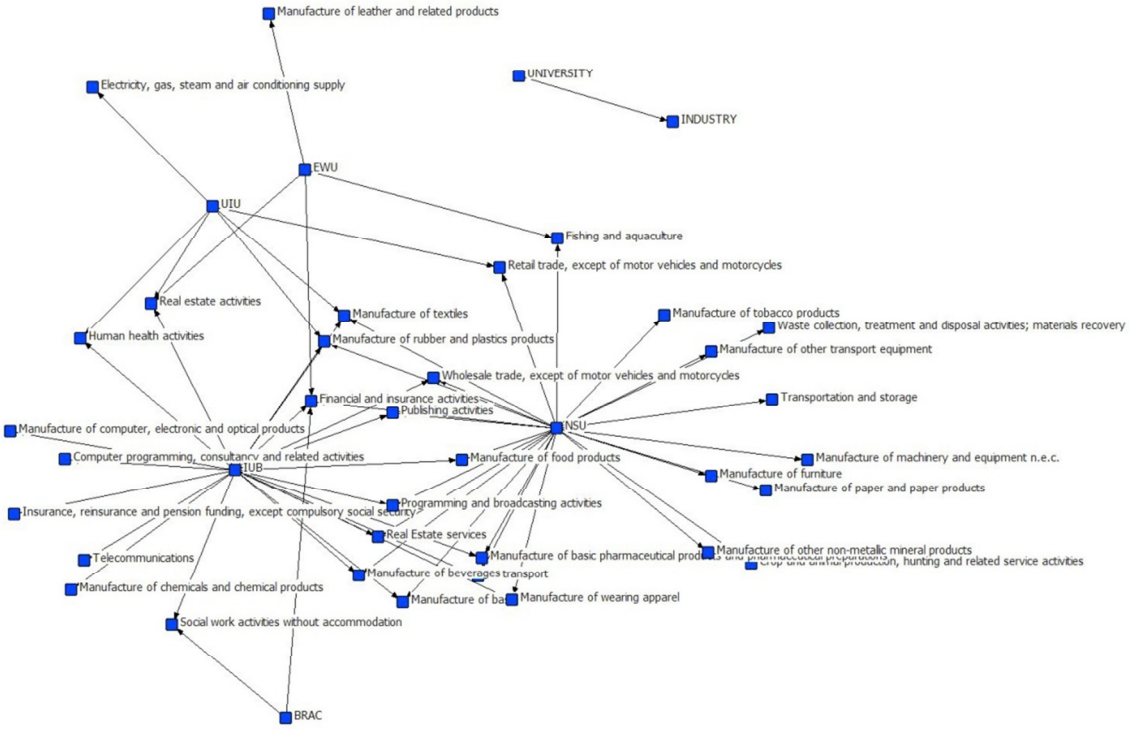
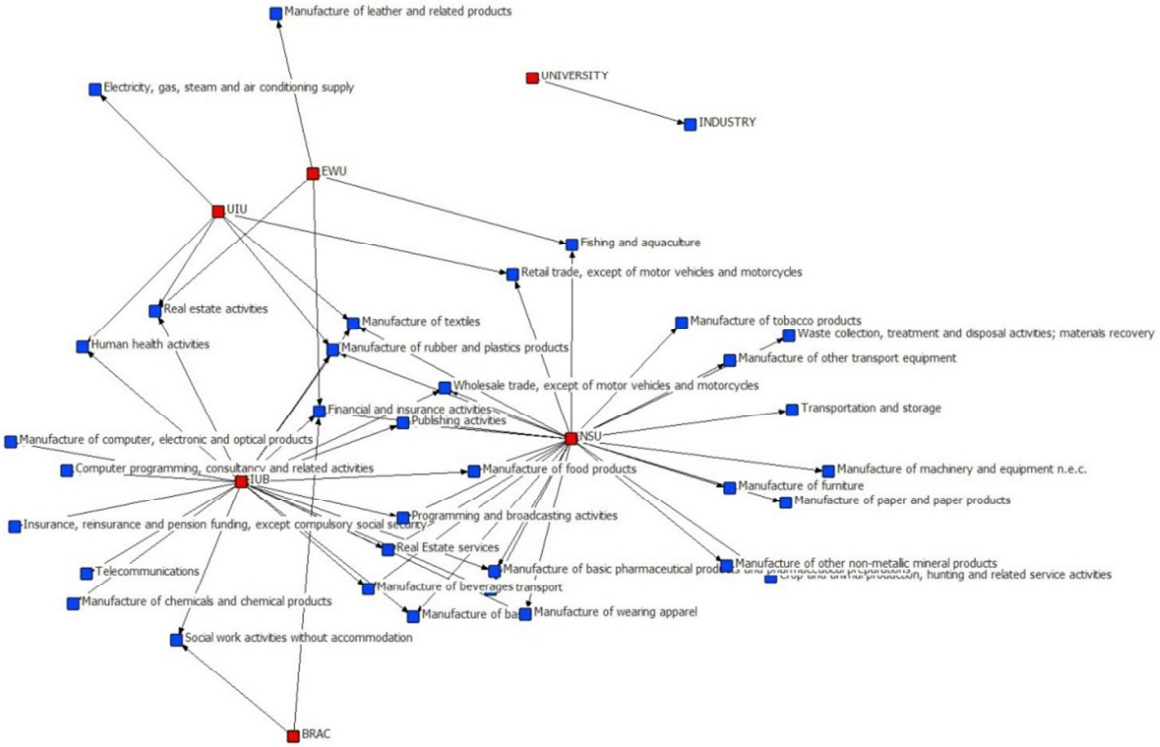
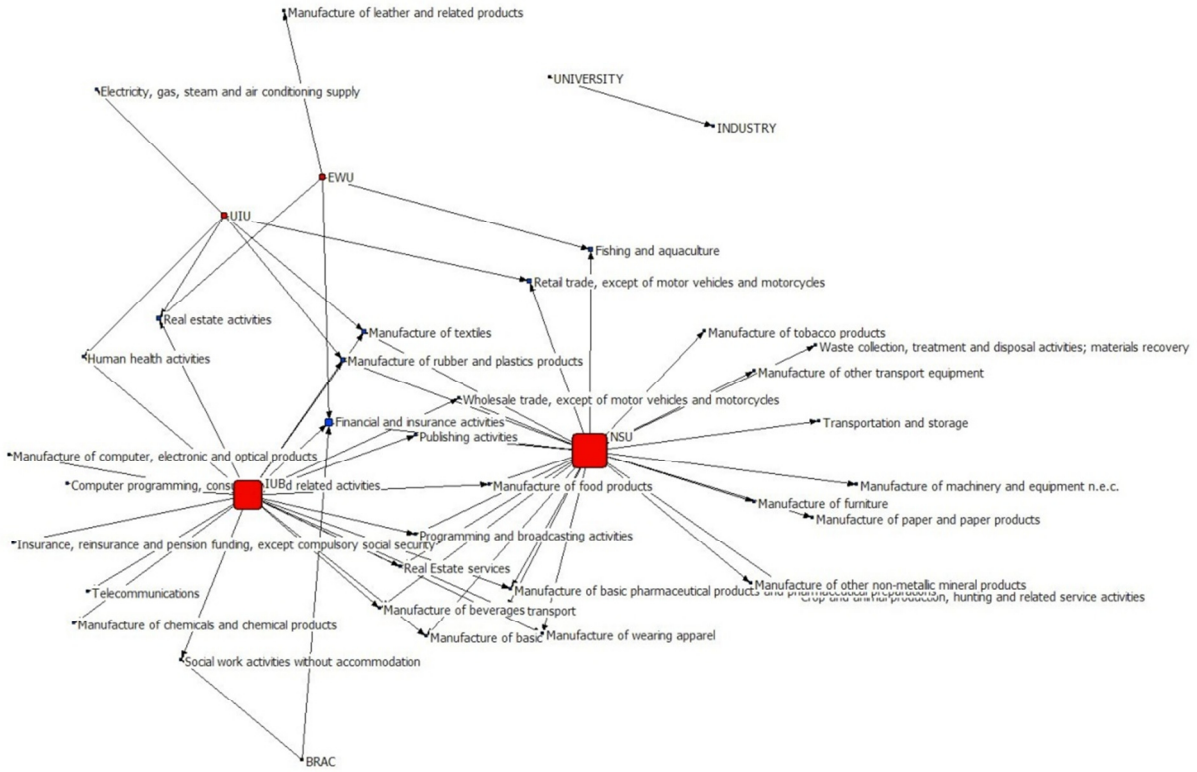


Figure-2



Since the network contains private universities and different industries, these two types of nodes should be displayed differently in the network. We have separated them by color-coding: the nodes in red represent the university, and blue nodes represent the industry.

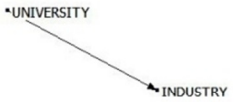
Figure-3

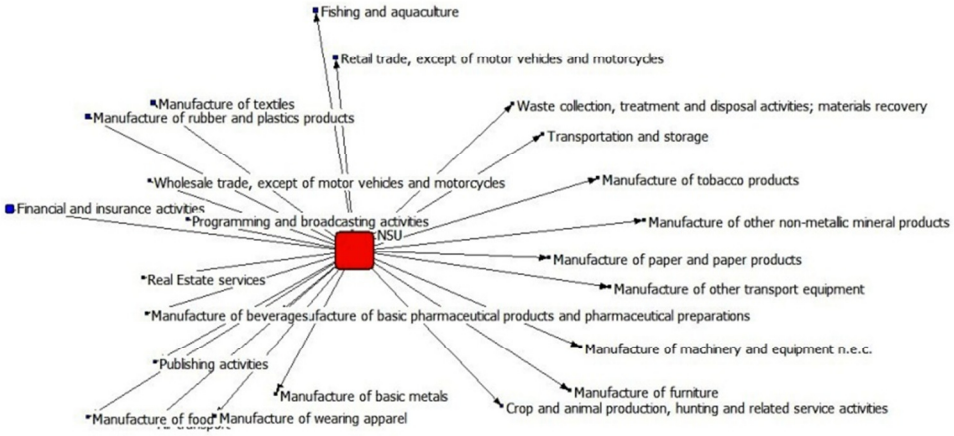


After color coding the nodes, it was still difficult to see the connections between them. Therefore, we managed to rank the nodes according to their betweenness centrality, so the nodes with higher betweenness centrality scores will be displayed as bigger nodes than those with lower scores. We also carefully considered different layout and display options to come up with the final layouts.

Graph 3 represents the private universities network of Bangladesh. The red color nodes represent the universities, and blue color represents the industry. The sizes of the nodes are ranked according to betweenness centrality; the bigger the node is, the higher betweenness centrality score it has. A high betweenness centrality might suggest that the industry or university is connecting various different parts of the network together; hence, the big nodes are expected to hold more control and influence over the network. Nodes around the edge of the network typically have a low betweenness centrality. This whole network visualization allows us to vividly see the most influential industries in the private universities network of Bangladesh.

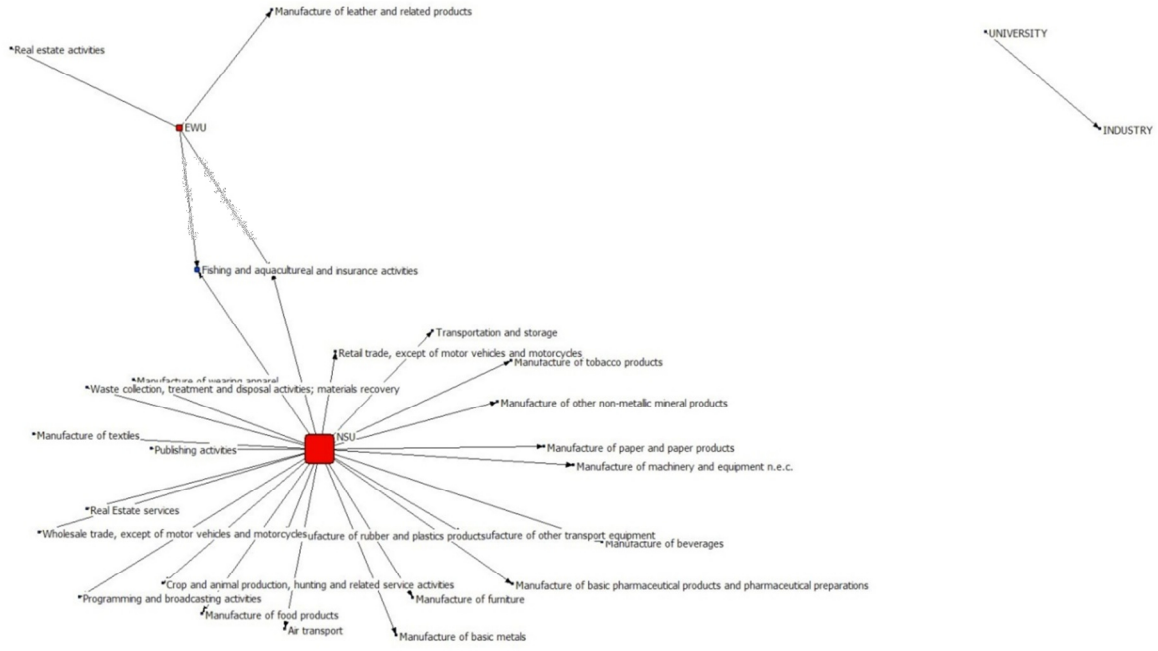
Figure-4





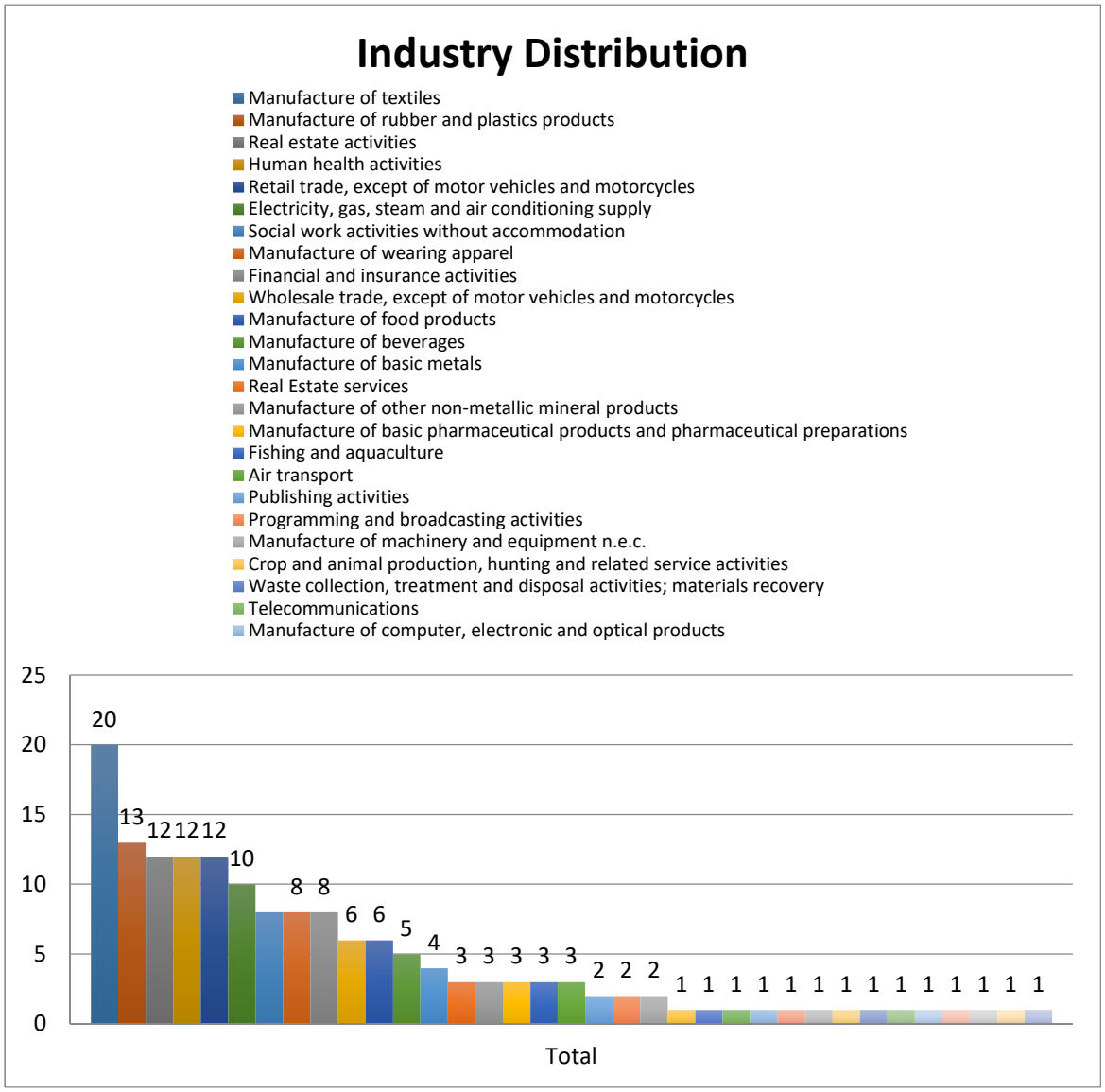
The full network graphs are composed of multiple smaller components. The smallest component is one university linked with one or more industries. In the figure above (Graph 4), North South University is connected to all the industries shown in the diagram.

Figure-5



Graph 5 below shows that North South University and East West University both are connected to many industries. Among them, financial and insurance activity, fishing, and agriculture connect both the universities together. Graph 5 is a bigger component that has connections of two private universities and multiple industries. The two common industries hold the roles as the coordinators, tying the relationship between the two universities. It is useful to know the components as a component can be used as an effective tool to identify how meaningful are the ties amongst the actors in the interlocking network. In NETDRAW, we can use the filter to show the component related to a specific actor. For instance, if an expert wants to see the connection of industries of North South University, they can filter using the specific tool, and NETDRAW will show the network of only North South University instead of the whole network of private universities of Bangladesh. Some prior studies have raised the concern that different industries may have different impacts on the interlocking directorship of the private universities. Hence, in Excel, we have made some visualization using a different data set to show different industry distribution. The results will be discussed below.

Figure-6



We have taken five universities – North South University, East West University, United International University, BRAC University and Independent University, Bangladesh as sample and from those universities, mapped 192 links through 86 entities. Content Analysis was done using data found from various website. Out of those 192 ties, 159 ties are used to draw the network diagram. According to industry distribution (Figure 5), private universities of Bangladesh have the highest number of connections with textile industries, 20 connections out of total 159 connections. Among the other links, there are 13 connections with rubber and plastic industries, 12 connections with each retail trade, human health activities and real estate activities and 10 connections with electricity, gas, steam and air conditioning supply. We have noticed that the network diagram has 35 different industries. Among the entities linked to the selected universities, links with 33 entities are not shown in the network diagram. Among them, 16 entities are associated solely with academia, details of 13 entities were not available as they may not be involved in any industry and 4 entities have held a government position at some point. The number of industries is only 35, therefore the distribution is not that dense to the edge, where the industries have little link to the private universities. Overall, interlocking directorates are being practiced in academia, and most of the boards of directors hold more important positions in other industries and

hence the larger nodes are representing those industries. They are not evenly distributed as the node sizes vary largely from each other. There are only a few industries that have more influence on the private universities and are represented by large blue nodes.

To study the adoption and diffusion of organizational practices among different organizations, institutional theory has been studied broadly (DiMaggio & Powell, 1983) (Meyer & Rowan, 1977) (Scott, 1995) (Tolbert & Zucker, 1983) (Abrahamson, 1991). A principle of the institutional perspective is that organizations sharing the similar surrounding will practice similar policies and will become "isomorphic" with one another. Organizations' conformity to institutional pressures driven by legitimacy motives explains the similarities of such practices and policies. There is also evidence that subsidiaries of Multinational Corporations adopt the organizational practices of parent organization if there is trust and dependence (Kostova & Roth, 2002). Since the private universities of Bangladesh are very closely related to the industries, the study indicates that the private universities are influenced by the different industries to some extent. In social network concept, universities should consider that the more industries are connected with a university, the more possibility that the outside forces will affect the university.

Conclusion

Little attempt has been made so far to specify the circumstances under which types of strategies are reliable and more effective than others and scant attention has been centered around the identification of Networks in the academic arena. It is for certain, that the most meaningful structural effects on networking strategies are the setting of the event. The availability of inherent network partners and the extent and organization of the network structure are significant. Structural opportunities render access to resources to achieve network privileges. It is not just the connections that are essential in networks, but the responses people take to form, develop, and serve from those relationships need to be considered. A limited relationship between structural influence and strategic development cannot ensure that network affiliates comprehend how to use such opportunities or apprehend structural constraints. There is more effort to take towards realizing the development and use of networking strategies. We are, very often, not certain about the strategies of action that can allow people to become centrally resided or maintain their centrality. Studies of Educational and Commercial industry network have not explained fully the networking approaches of academics. The study builds on the prior research of networking strategies by examining how individual and structural factors influence the expansion of networking procedures in academic sections. The study indicates the initial growth of networking strategies and a greater perception of how each strategy appears to affect department-wide network structures. Such information is worthy for learning more about faculty members' activities in their academic departments and the outcomes of interactions.

This study shows that universities of Bangladesh have gone through extensive changes over the past few decades. With the establishment of the first private university in the early nineties, the way the academia used to work has changed. First, it enabled a large number of students to get enrolled in higher education. Secondly, this has given rise to the concept of students being the consumers based on marketing concepts. This study also shows that the academic network of the private universities is closely linked to the different industries and it is evident from the previous studies that the multinational organizations adopt practices from the of the parent organizations. Though it depends on other factors like trust and dependency among the organizations, since the private universities of Bangladesh are financed by various private organizations, practices of those organizations may affect the practices of the private universities of Bangladesh.

By analyzing the networks of the private universities of Bangladesh with the aid the graphical tool, this study concludes that the private universities and the various industries of Bangladesh are inextricably interwoven. This finding is backed up by data obtained by content analysis from a wide range of sources. In a nutshell, we can deduce that the highest number of links of the private universities is connected to the manufacturing industries of various types and among them all, textile manufacturing industries are at the top of the list. Furthermore, practices of the parent organization has an everlasting effect on the practices of the subsidiaries all over the world and it has been proven by many researchers over the past few decades, which clearly indicate that the private universities of Bangladesh are no exceptions; they are influenced by the industry to some extent. Learning more about the private university networks and their interlinks with the industry will enable the policy maker, administrators, faculty members, and researchers to get a clear insight about the scenarios prevailing in academia and thus make effective decisions for issues related to academia.

References

Abrahamson, E. (1991). Managerial fads and fashions: Diffusion and rejection of innovations. *Academy of Management Review, 16*, 586–612.

Adler, P. S., & Kwon, S. (2002). Social capital: Prospects for a new concept. *Academy of Management Review, 27* (1), 17-40.

Agrawal, A., & Henderson, R. (2002).Putting patents in context: Exploring knowledge transfer from MIT.*Management science*, *48*(1), 44-60.

BANBEIS. (2014). *Bangladesh Education Statistics 2014*. Retrieved March 20, 2016, from BANBEIS-Educational Database: http://banbeis.gov.bd/data/index.php.

Bangladeh Bureau of Statistics (BBS). (2016). *Gross Domestic Product (GDP) of Bangladesh 2014-2015 (Base : 2005-06) (Date: 20-02-2016).* Bangladesh Bureau of Statistics (BBS).

Bangladesh Government. (2010, July 18). *Private University Act-2010*. Retrieved April 20, 2016, from University Grants Commission of Bangladesh: http://www.ugc.gov.bd/uploads/2015/policyact/PrivateUniversityAct-2010.pdf.

BRAC University. (n.d.). Retrieved March 21, 2016, from BRAC University: http://www.bracu.ac.bd

Behrens, T. R., & Gray, D. O. (2001). Unintended consequences of cooperative research: impact of industry sponsorship on climate for academic freedom and other graduate student outcome. *Research policy*, *30*(2), 179-199.

Blau, P. M. (1974). *On the nature of organizations*. New York: Wiley.

Brass, D. J., &Burkhardt, M. E. (1993). Potential power and power use: An investigation of structure and behavior. *Academy of management journal*, *36*(3), 441-470.

Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004).Taking stock of networks and organizations: A multilevel perspective.*Academy of management journal*, *47*(6), 795-817.

Burt, R. S. (1997). The contingent value of social capital.*Administrative science quarterly*, 339-365.

Cook, K. S. (1990). Linking actors and structures: an exchange network perspective.*Structures of Power and Constraint*, 113-128.

Deiaco, E., Holmén, M., &McKelvey, M. (2009). What does it mean conceptually that universities compete.*Learning to compete in European Universities*, 301-328.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*, 147–160.

East West University. (n.d.). Retrieved March 21, 2016, from East West University: http://www.ewubd.edu.

Etzkowitz, H. (1998). The norms of entrepreneurial science: cognitive effects of the new university–industry linkages. *Research policy*, *27*(8), 823-833.

Etzkowitz, H. (2003). Innovation in innovation: The triple helix of university-industry-government relations. *Social science information*, *42*(3), 293-337.

Etzkowitz, H., &Leydesdorff, L. (2000). The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university–industry–government relations. *Research policy*, *29*(2), 109-123.

Feller, I. (1990). Universities as engines of R&D-based economic growth: They think they can. *Research Policy*, *19*(4), 335-348.

Finkelstein, M. (1981).The Dimensions of Colleagueship among College and University Faculty.

Fischer, H. M., & Pollock, T. G. (2004). Effects of social capital and power on surviving transformational change: The case of initial public offerings. *Academy of Management Journal, 47* (4), 463-481.

Galaskiewicz, J. (1996). *The 'new network analysis' and its application to organizational theory and behavior. In D. Iacobucci (Ed.), Networks and marketing.* Thousand Oaks, CA: Sage.

Geleta, N. E. (2004). Emerging from the shadows: Immigrant women of color in the academy.*Immigrant women of the academy: Negotiating boundaries, crossing borders in higher education*, 21-35.

Gersick, C. J., Dutton, J. E., &Bartunek, J. M. (2000). Learning from academia: The importance of relationships in professional life. *Academy of Management Journal*, *43*(6), 1026-1044.

Goethals, G. R., & Darley, J. M. (1987). Social comparison theory: Self-evaluation and group life. In *Theories of group behavior* (pp. 21-47).Springer New York.

Ibarra, H. (1993). Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. *Academy of Management journal*, *36*(3), 471-501.

Ibarra, H., Kilduff, M., & Tsai, W. (2005).Zooming in and out: Connecting individuals and collectivities at the frontiers of organizational network research.*Organization science*, *16*(4), 359-371.

Independent University, Bangladesh. (n.d.). Retrieved March 21, 2016, from Independent University, Bangladesh: http://www.iub.edu.bd.

Kilduff, M., & Brass, D. J. (2010). Organizational social network research: Core ideas and key debates. *The Academy of Management Annals*, *4*(1), 317-357.

Kilduff, M., &Krackhardt, D. (1994). Bringing the individual back in: A structural analysis of the internal market for reputation in organizations. *Academy of management journal*, *37*(1), 87-108.

Kilduff, M., & Tsai, W. (2007). *Social networks and organizations.* Los Angeles: Sage.

Kostova, T., & Roth, K. (2002). Adoption of an Organizational Practice by Subsidiaries of Multinational Corporations: Institutional and Relational Effects. *Academy of Management Journal, 45* (1), 215-233.

Krackhardt, D., & Porter, L. W. (1985).When friends leave: A structural analysis of the relationship between turnover and stayers' attitudes.*Administrative science quarterly*, 242-261.

Krimsky, S. (2003). Science in the Private Interest: How the Lure of Profits Has Corrupted the Virtue of Biomedical Research.

Lincoln, J. R. (1982). Intra-(and inter-) organizational networks. *Research in the Sociology of Organizations*, *1*(1), 1-38.

Martini, E., & Rossi, M. (2010). *The Transformation of University-Industry Relations. The Case of Campania.* Economic Themes I, ATINER, Athens.

McGuire, G. M. (2000). Gender, Race, Ethnicity, and Networks The Factors Affecting the Status of Employees' Network Members. *Work and occupations*, *27*(4), 501-524.

Mehra, A., Kilduff, M., & Brass, D. J. (1998). At the margins: A distinctiveness approach to the social identity and social networks of underrepresented groups." 41.4. *Academy of Management Journal, 41* (4), 441-452.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83* (2), 340–363.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis.* Thousand Oaks, CA: Sage.

Monge, P. R., & Contractor, N. S. (2003).*Theories of communication networks*. Oxford University Press, USA.

Murray, F., & Stern, S. (2007). Do formal intellectual property rights hinder the free flow of scientific knowledge?: An empirical test of the anti-commons hypothesis. *Journal of Economic Behavior & Organization*, *63*(4), 648-687.

Ng, I. C., & Forbes, J. (2009). Education as Service: The Understanding of University Experience Through the Service Logic. *Journal of Marketing for Higher Education, 19* (1), 38-64.

North South University. (n.d.). Retrieved March 20, 2016, from North South University: http://www.northsouth.edu.

Perkmann, M., & Walsh, K. (2007). University–industry relationships and open innovation: Towards a research agenda. *International Journal of Management Reviews*, *9*(4), 259-280.

Reskin, B. F. (1978). Sex differentiation and the social organization of science.*Sociological Inquiry*, *48*(3-4), 6-37.

Rosell, C., &Agrawal, A. (2009). Have university knowledge flows narrowed?: Evidence from patent data. *Research Policy*, *38*(1), 1-13.

Rosenberg, N. (1982). *Inside the black box: technology and economics*. Cambridge University Press.

Salancik, G. R., & Burt, R. S. (1995).Wanted: A good network theory of organization.

Scott, W. R. (1995). *Institutions and organizations.* Thousand Oaks, CA: Sage.

Scott, W. R., & Davis, G. F. (2015).*Organizations and organizing: Rational, natural and open systems perspectives*. Routledge.

Siegel, D. S., Waldman, D., & Link, A. (2003).Assessing the impact of organizational practices on the relative productivity of university technology transfer offices: an exploratory study.*Research policy*, *32*(1), 27-48.

Stevenson, W. B., & Greenberg, D. (2000). Agency and social networks: Strategies of action in a social structure of position, opposition, and opportunity. *Administrative Science Quarterly*, *45*(4), 651-678.

Stevenson, W. B., & Greenberg, D. (2000). Agency and social networks: Strategies of action in a social structure of position, opposition, and opportunity. *45* (4), 651-678.

Stokes, D. E. (1997).*Pasteur's quadrant: Basic science and technological innovation*. Brookings Institution Press.

Tolbert, P. S., & Zucker, L. G. (1983). Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880–1935. *Administrative Science Quarterly, 8*, 22–39.

UGC Bangladesh. (2016). *Private Universities*. Retrieved March 21, 2016, from University Grants Commission of Bangladesh: http://www.ugc.gov.bd/en/home/university/private/75.

United International University. (n.d.). Retrieved March 20, 2016, from United International University: http://www.uiu.ac.bd.

United Nation. (2016). *United Nations Statics Division - Classifications Registry (Bangladesh Standard Industrial Classification)*. Retrieved March 21, 2016, from United Nations: http://unstats.un.org/unsd/cr/ctryreg/ctrydetail.asp?id=1380.

United Nations. (2016). *United Nations Statics Division - Classifications Registry*. Retrieved March 21, 2016, from United Nations: http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27.

Wasserman, S., & Faust, K. (2008). *Social network analysis: Methods and applications.* New York: Cambridge University Press.

Woolgar, L. (2007). New institutional policies for university–industry links in Japan.*Research Policy*, *36*(8), 1261-1274.