Social capital, intrapreneurship and productivity in academic institutions

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Abstract

The importance of social interaction and networking in fostering entrepreneurial activities has been widely researched over the last decade. There is however limited evidence of the association between these two constructs in a knowledge based environment. As universities are under constant pressure to improve the productivity of academic staff within universities, we examine the role of social interaction in fostering entrepreneurial activities. A web-based survey is implemented, facilitated by empirical analysis using correlation and multiple regression to probe the relationship between these constructs. Whilst it can be concluded that the constructs are all multidimensional, varying relationships were identified when statistically examining the interrelations. Overall, there is a significant relationship between social interaction and productivity. Intrapreneurship also portrays such significance, albeit varying between dimensions of autonomy, innovativeness, risk taking, proactiveness and competitive aggressiveness.

Keywords: networks, networking, social capital, intrapreneurship, productivity

INTRODUCTION

The role of social capital has been investigated increasingly in recent years as a useful resource in the form of cooperative behaviour and trust that is engendered by the fabric of social relationships. It has been applied to solve many problems in societies since its appearance in the literature, with applications such as education, public health, economic development, community life, youth behavior problems and general problems of collective actions (Fukuyama, 1995; Coleman, 1988; Loury, 1987; Jackman & Miller, 1998; Portes & Sensenbrenner, 1993; Woolcock, 1998; Baker, 1990; Putnum, 1993; 1995; Zahra, Yavus & Ucbasaran 2006).

Confronted with many questions in their field of study, organizational researchers applied this concept in different areas. The range of organizational issues which have been answered by social capital has been broad and various, including career success (Gabby & Zuckerman, 1998;
Burt, 1992), executive compensation (Belliveau, O’Reilly & Wade, 1997), finding jobs (Granovetter, 1995; Lin & Dumin, 1996), producing a pool of recruits for firms (Fernandez, Castilla & Moore, 2000), product innovation (Tsai & Ghoshal, 1998), the creation of intellectual capital (Nahapiet & Ghoshal, 1998). In this study, we examined the role of social capital in fostering entrepreneurial activities in an academic context; more specifically, how social capital available to academics fosters intrapreneurial activities and therefore improves their productivity.

Appropriate to this study, we elaborate on social capital and networking and discuss how it encourages intrapreneurial activities of academic staff and their productivity. We formulated hypotheses around these research constructs and subjected the hypotheses to empirical testing based on a survey conducted in five Australian universities located in Metropolitan Melbourne. Our findings provide support for the association among appropriate social interaction and networking, intrapreneurship and productivity. Social capital includes academic interactions, similar to networking activities in venture developments.

We do not wish to elaborate on the extent of literature in intrapreneurship, but relate entrepreneurial activities of proactivity, innovation and risk-taking in an academic context. We are not inferring that academics are intrapreneurs in the context of business venturing.

This study has investigated the people base of entrepreneurship in academic institutions by focusing on social relationships. Thus, this research will contribute to the advancement of both the social capital and entrepreneurship literature by proposing that social interaction may foster intrapreneurship. The study is hypothesis lead, being a result of gaps we identified in current literature and previous empirical studies. What follows is a summary of the construct literature, together with hypotheses developed around the integration of the constructs.
LITERATURE REVIEW

Social capital

An examination on the extant literature of social capital indicates that researchers have not been consistent in their definition on this concept. Some researchers have limited their definitions to networks (Burt, 1992; Baker, 1990; Bourdeau, 1986). Others have adopted broader perspectives and defined it in terms of networks and all assets embedded through the networks (Putnum, 1995; Coleman, 1990; Thomas, 1996). These definitions are broadly similar but there are some minor differences that have significant impact on their studies. Due to this definitional inconsistency, we rather based our study on the definition of social capital in which networks are the main focus (Burt, 2000).

According to this conceptualization, without social ties and interactions, social capital will not be available. Granovetter (1992) used the term “structural embeddedness” to refer to social capital, which is concerned with the properties of the social system and the network of relations as a whole. In the context of this study, social capital of academic staff is the time that they have spent in social interactions with their contacts such as colleagues, business/industry contacts and so on.

Intrapreneurship

Entrepreneurial activities in organizational context are referred in the literature as intrapreneurship (Pinchot, 1985). Intrapreneurship has been widely touted by researchers as an effective means for revitalizing established organizations and improving their performance and enhancing nation’s competitiveness (Covin and Slevin, 1991; Miller, 1983; Miller and Friesen, 1982; Zahra, 1993; Zahra & et al, 1999; Sathe, 2003; Kuratko & Welch, 2004). The implicit logic
behind this pervasive belief is that the main characteristics of intrapreneurship including inclination toward taking risk, preparedness to seize the opportunities in the market and innovating new products and services, would able firms to respond to uncertainties in their environment (Miller, 1983; Zahra et al. 1999).

The characteristics of entrepreneurship in organizations have been subject of research since its early appearance in the literature. Based on extensive research by Lumpkin and Dess (1996; 2001), intrapreneurship has five dimensions: autonomy, innovativeness, risk taking, proactiveness and competitive aggressiveness. We examined these dimensions from conceptualization to empirical analysis in the literature.

One of the most important facets of intrapreneurship is self-renewal (Bolton & Thompson, 2005; Zahra, 1999). Covin & Miles (1999) have noted that renewal refers to changing and improving the relationship with external environment. In the context of this study, academic staff that are closely connected to the world outside of the university are intrapreneur.

**Productivity**

The increasing pressures on universities to extend their services have focused their attention on improving performance. As the provider of research services, academic staff, play an important part in enhancing the performance of academic institutions and contribute to decrease the pressures on universities. Therefore, improving the performance of academic staff is the major determinant of universities performance. The components of research performance including productivity and research activities and the method to measure them are discussed.

In academic community, the most critical indicator of research productivity is publication. As the physical and conventional form of academic world, publishing books and journal articles is the most fundamental social processes of communicating and exchanging research findings (Wood,
In academic environments, publication brings precognition and promotion for both academics and their institutions. Also, as a unique criterion for obtaining competitive research funds, publishing is an evidence of institutional excellence. Leading universities are expending a lot of time and money in publicizing the quantity of their number of books and articles.

**Association between Social Capital and Intrapreneurship**

Empirical studies have indicated that social interaction plays an important role in facilitating innovation and creativity (Ruef, 2002; Tsai & Ghoshal, 1998; Gabby & Zuckerman, 1998; Hansen, 1998). Network theorists have examined the association between access to networks and developing new ideas and creativity. For example, Burt (2004) has noted that good ideas or alternative ways of thinking and behaving are disproportionately in the hands of people whose networks span structural holes. Ruef (2002) have examined the role of network ties in inducing conformity and sustaining trust, as well as novel ideas. He argues that people that are connected to groups beyond their own can expect to find themselves delivering valuable ideas, seeming to be gifted with creativity. Generally speaking, the propensity among entrepreneurs toward innovation is seen to be a function of the types of social relationships that those ent There are empirical and theoretical studies that indicate the association between of social interaction and risk taking (Ouchi, 1979; Nahapiet & Ghoshal, 1996; Ring & Van de Ven, 1992).

Social communication results in proactiveness by helping in the detection and identification of environmental threats and opportunities as well as in taking action to exploit or neutralize the environmental uncertainty (Kohli & Jaworski, 1990). Social communication makes it easier for organizational participants to transfer knowledge (Noanka, 1994). Utilizing social interaction within organizational contexts not only will benefit participants but also organizations will gain advantage by economize on their expenses and timely response to environmental needs and demands. Therefore,
HI: There is a positive relationship between social capital and intrapreneurship.

Social relationship between people can improve the productivity of macro and micro identities. The association between social capital and productivity has been subject of focus in national and organizational level. Knack and Keefer (1997) provide empirical evidence that shows social interaction matters for measurable economic performance, using indicators of trust and civic norms from the World Values Surveys for a sample of 29 market economies. Putnum (1993) has argued that membership in formal groups is associated with efficiency and effectiveness in national level.

Theoretically, there have been extensive arguments about the relationship between performance and intrapreneurship (Zahra, 1991; Covin & Slevin, 1991). However, scholars examined this association empirically (Covin, 1991; Covin & Slevin, 1989; Zahra; Covin & Zhara, 1998; Zahra, 1996; Zahra, 1993). Most of these studies have examined the association between entrepreneurship and the financial aspects of performance in private sector. There is a limited research among these constructs in non-profit sector. Intrapreneurship activities in academic institutions however do not infer that academics are entrepreneurial in the business sense.

H2: There is a positive relationship between innovation and productivity.

METHOD

The sampling frame: of this study consisted of full time academic staff at universities in metropolitan Melbourne. The statistic population of 5695 academic staff embraced various levels of academic positions, ranging from Lecturer to Professor. Data was collected via electronic media, whereby academic staff were encouraged to participate in an online questionnaire via an email hyperlink. The online and electronic media survey approach as amplified by Dillman (2000) was adapted for the study. The questionnaire was designed as an integration of the
constructs, using a variety of techniques and structures. **Dependant variables:** consisted of productivity and entrepreneurial orientation. Regarding this fact that the purpose of the study was to decrease the pressures from universities, productivity was the dependent variable. An index of research productivity (IP) was defined as the five sum of \(3 \times \) the number of single or multi-author books + (the number of papers published in refereed journals) + (the number of edited books) + (the number of chapters in refereed books). This index of productivity, like all others that attempt to provide a single measure of quantity of output that is applicable across different disciplines, is imperfect. It is, however, consistent with the more advanced measure reviewed by previous authors (Wood, 1990; Ramsden, 1994).

The construct of intrapreneurship has been considered as a dependent and independent variable. The scale of intrapreneurship operationalized innovativeness, risk-taking and proactiveness, self renewal. However, to adopt it into academic context, 18 items have been added and also the 7 items have been rewritten and in some cases the developed scale for intrapreneurship in universities have been used. Therefore, the questionnaire for the construct has 25 items. All questions have measured these dimensions on a Likert scale of 5 options.

**Independent variables:** consisted of social capital and intrapreneurship. The social capital section comprised of frequency of communication and emotional attachment to this interaction in an organizational context. The Likert scale of five options were used, the respondents have specified the time that they have spent in a week with their networks by choosing one of options from 0 to 2 hours a week for 1 score and more than 9 hours for 5 score. For emotional attachment they specified the emotional closeness to their contacts.

The characteristics of the statistical sample such as gender, age, and experience in the field of study, experience in their institutions, function and position have served as control variables. One
way analysis of variance (ANOVA) was used to examine statistically significant differences among groups classified by social capital, intrapreneurship and productivity.
RESULTS

To predict productivity, a multiple regression analysis was undertaken. Two variables, including innovativeness and frequency of communication, are independent variables and productivity as dependent variables are present in the model. This analysis has resulted in an equation with two independent variables and intercept. The other research constructs served as independent variables and productivity as a dependent variable. The beta coefficients in the model indicate that each independent variable contributes to a predicted variable.

A standard multiple regression was performed between productivity as the dependent variable and frequency of interactions and innovativeness as independent variables. Table 1 indicates the correlation between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (beta), sr square, R square and adjusted R square. R for regression was significantly different from zero, F (2, 206) = 20.523, p<0.001. For the two regression coefficients that differed significantly from zero, 95 % confidence intervals were calculated. The confidence limits for frequency of interactions were 0.221 to 1.692 and those limits for innovativeness were 1.046 to 2.262. These two independent variables contributed significantly to prediction of productivity as innovativeness 0.14 (sr Square) and frequency of interactions 0.027 (sr Square). The two variables in combination contributed another 0.113 in shared variability of the dependent variable. Altogether, 16.6 % of the variability of productivity was predicted by knowing the scores on these two variables.
Table 1 Predicting Productivity by Frequency of Interactions and Innovativeness

<table>
<thead>
<tr>
<th>Variables</th>
<th>Productivity</th>
<th>Frequency of communication</th>
<th>Innovativeness</th>
<th>B</th>
<th>Beta</th>
<th>sr(square)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of</td>
<td>0.223</td>
<td>0.957**</td>
<td>0.165</td>
<td>0.027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td><strong>p&lt;0.01</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovativeness</td>
<td>0.374</td>
<td>0.167</td>
<td>1.654**</td>
<td>0.346</td>
<td>0.140</td>
<td></td>
</tr>
<tr>
<td><strong>p&lt;0.01</strong></td>
<td><strong>p&lt;0.01</strong></td>
<td>R Square = 0.166</td>
<td>Adjusted R Square = 0.158</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means</td>
<td>15.54</td>
<td>17.19</td>
<td>18.74</td>
<td>R = 0.408**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>20.07</td>
<td>3.47</td>
<td>4.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>- 31.9</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

To determine which of the variables included in the model contributed to the prediction of the dependent variable, beta coefficients were inspected. Beta coefficients in Table 1 provide information regarding the level of contribution of each independent variable in predicting dependent variable. As the standardized coefficients column shows, the largest beta coefficient is 0.346 which is for innovativeness. This means that this variable makes the strongest unique contribution to explaining the dependent variable. The beta value for frequency of communication is 0.165 indicating that it made less of contribution. These two values are coefficients for these two variables in the equation. Therefore, there are two independent variables available to predict the dependent variable, productivity (PROD). To predict academic staff productivity score, the available independent variable scores are multiplied by their respective regression coefficients. The coefficient-by-score products are summed and added to the intercept, or base line, value (A). Thus, the multivariate equation to predict productivity is as follows:

Predicted productivity (Z) = - 31.9 + 0.346 (Z1) Innovativeness + 0.165 (Z2) Communication
Hierarchical regression was employed to determine the combination effect of age, experience in the field of study and experience in the institution on the equation.

DISCUSSION

The findings indicate a strong and significant relationship between the frequency of communication with other research constructs. The study found a significant relationship between frequency of interactions and innovativeness, renewal and intrapreneurship after controlling for possible effects from other variables. The role of social capital in fostering innovation and developing new ideas has been the focus of study in recent times (Burt, 2004; Ruef, 2002). The findings of the study support this notion in the literature that communications with available network members assist people to be innovative and intrapreneur.

The benefit of access to networks in utilizing opportunities has been reflected in the literature (Burt, 2000; Adler & Kwon, 2002). The linkage between performance and entrepreneurship is widely studied in the literature (Zahra, 1996; Lumpkin & Dess, 1996; Kuratko, 2005). Academic productivity was conceptualized in this research as related to publications such as in journals, writing books. The findings in this study have confirmed that productivity has a positive and moderately strong relationship with intrapreneurship. In the academic context, it has shown that those who have more productivity scores have more intrapreneurship scores. In general, consistent with literature in the field, strong relationships between intrapreneurship and performance have been acknowledged.

The results of regression analysis identified more parsimonies and complex conclusions. The predictability of productivity and intrapreneurship has been evaluated. Regarding the importance of improving the productivity of academic staff for academic institutions the equation for predicting productivity as dependent variables and independent variables has been developed in
this study. The frequency of communication and innovativeness predict productivity as independent variables significantly. To make sure that these two variables still contribute significantly to predict productivity some variables such as age and experience in the field of study where controlled and the results indicate no change in the equation. Therefore, given the score of innovativeness and frequency of communication, productivity for each academic may be predicted by this equation.

**CONCLUSION**

This study examined the role of social capital in fostering intrapreneurship and productivity. Particularly, the focus of the study was the question whether social capital foster entrepreneurial activities and thereby improve the productivity of academic staff in universities. The results indicated that there is a positive relationship between these two research constructs. In addition a mathematical model was developed including two variables, that is, the frequency of communication and innovativeness that can predict productivity of academic staff.

The literature on entrepreneurship in organizations suggest that it is in the infancy stage and many factors should be examined to foster entrepreneurial activities. Similarly, social capital is viewed as an emerging concept and is fast gaining currency in organizational studies. This research provided evidence that these constructs should be studied in more depth, and a foundation set for further research about their relationship and many other factors that need be investigated to advance theories and concepts.
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