Manager Dissemination of Task and Relational Processes to Enhance Small Business Viability

The substantial failure rate of small businesses is quite clear from current small business survivability statistics (Knaup, 2005). Problems with interpersonal processes are considered to be a critical element of small business viability (Bird, 1989; Nurick, 1993), therefore we intend to demonstrate how interpersonal processes and the dissemination of that information impacts small business operations. Early organizational behavior research found that managers communicate through processes of initiating structure and consideration in order to be effective with employees (Halpin & Winer, 1957). What is missing is how small business managers utilize this communication to enlist employees' contributions. Our investigation is an exploration to develop a research model that will be used to describe insight for improving manager to employee interpersonal processes and subsequently improve key small business elements such as management policy, financing, and innovation.

Small businesses have been the core of our economy for many years and currently maintain that status (Watson, Stewart, & BarNir, 2003). Our research will develop an additional area of support for managers in regard to these ventures and the enhancement of their sustainability. The results will provide survey instruments and research methods for small business researchers in their study of small businesses, and will be useful in beginning to identify best practices for venture managers to improve their effectiveness with employees. Management of small businesses typically involves managers who actively participate in a business in which they have a financial interest (Kamm & Nurick, 1993; Timmons, 1990; Vesper, 1993). Critical to this participation are manager-employee task and relational interpersonal processes through which daily operations are carried out. Relational processes involve activities such as encouragement and conflict management, and task processes are activities such as work quality and continual improvement (Watson, Stewart, & BarNir, 2003). Effective manager and employee interaction can provide greater resources, various points of view, greater checks and balances, and a broader array of ideas and abilities (Dunn & Lee, 1989; Hansen, 1991; Hofer & Sandberg, 1987; Kamm, 1987). Development of interaction processes with employees is a set of activities controlled by managers, unlike external factors, and can be shaped to enhance ventures' chances of success (Forbes, Borchert, Zellmer-Bruhn, & Sapienza, 2006).

Manager dissemination of information influences the survivability, profitability, and growth potential of small businesses, and Cooper & Bruno (1977) report that participation-oriented managers are more financially successful. Timmons (1984, 1990) also observed that ventures in which employee collaboration is emphasized are more successful, as measured by longevity and profitability. Kamm, Shuman, Seeger, & Nurick (1990) found that 56 of the 100 best performing small businesses were effective collaborative ventures that had higher revenues, greater net incomes, and more successful market capitalization than non-participative ventures. Functional interpersonal processes speed product development and commercialization (Nevins, Summe, & Utal, 1990), particularly in a dynamic environment (Bingham & Quigley, 1989).

Even though there are many small business successes, a significant number of these ventures are dissolved within a few years (Knaup, 2005). Seven out of 10 new employer firms survive at least 2 years, half at least 5 years, a third at least 10 years, and a quarter stay in business 15 years or more (SBA, 2010). The specific causes of the terminations are often difficult to pinpoint, but Timmons (1990) suggests that "substantial disaffection" between employees is a key factor. This disaffection may result from the lack of cohesion, common goals, commitment, fairness, and common views on value creation. Research is beginning to show the impact of effective interpersonal information sharing on small business performance, and this interpersonal perspective most often encompasses task and relational information (Watson, et al., 2003).

Interpersonal Effectiveness Research

Managers' collaboration with workers and their dissemination of relevant information may positively impact the operation of the ventures, but small business collaboration has not been studied empirically as extensively as would be expected from its pervasiveness and relative success. Bettenhausen (1991) analyzed more than 1000 articles on groups that were produced during the five-year period of 1986-1990, and little empirical research examined small business employees as subjects. One factor leading to this relative lack of attention is the difficulty of securing small business employee research participants. Another factor is that most of the small group research has been academic in nature and has not included applied business settings (e.g., see Watson, Michaelsen, & Sharp, 1991).

Interpersonal processes impact small business performance (Bird, 1989; Goslin & Barge, 1986; Kamm & Nurick, 1993; 1980). Many problems within small businesses stem from poor

interpersonal relationships among employees (Bird, 1989; Kamm & Nurick, 1993; Kamm et al., 1990; Thurston, 1986; Welles, 1989). Marques (2008) found that interpersonal issues account for 78.4% of employee problems and process-oriented problems was second at 15.6%. Ventures are frequently formed through existing associations, and problems result from inadequately communicating expectations regarding the work relationship (Lloyd, 1991; MacMillan, Zemann & Subbanarasimha, 1987; Neiswander, Bird, & Young, 1987). Researchers have concluded that to increase business success, partners should share their assumptions about the operational structure and give ample consideration to interpersonal skills (Bird, 1989; Rooney, 1987; Shapero, 1975). Hitt (1993) asserts that shared values are important to venture projects, Gersick (1994) stresses an optimal sharing of knowledge and skills about business operations, and DeChurch & Mesmer-Magnus (2010) affirm the importance of team-oriented cognition. In other words, managers and employees must keep on the same "wavelength" about business cycles and strategies.

When examining the structure and dynamic processes of relationships in small businesses, important interpersonal issues arise such as bonding, conflict, and team development (Bird, 1989). A common source of conflict among team members is posited to be discrepant or unclear motives for starting and developing a new venture (Greenberg & Weinstein, 1992; Morris, 1989; Norman & Zawacki, 1991). Failure to clearly communicate goals and aspirations between the founders of a firm can be a problem both during the start-up and growth phases of the business (Timmons, 1984, 1990). Under the interpersonal issues construct, communication ranked the highest (Marques, 2008). In addition, conflicts may be avoided if employees understand each other's view of the venture's mission (Matthes, 1992; Mills, 1967; Pavia & Berry, 1991). Watson, Ponthieu & Critelli (1995) found that small business interpersonal processes and manager evaluation of these activities influenced reports of success. In addition, Watson, Stewart & BarNir (2003) found that manager demographics and interpersonal process affected manager evaluations of venture growth.

In the management strategy literature there are numerous approaches to developing strategic plans, but these plans seldom offer specific process and behavioral elements that affect actions (Afuah, 2003). The movement of process innovation into mainstream business (Davenport, 1993) has pushed research on management interpersonal processes more into the limelight along with key business elements such as management policy and financing (Hitt,

1993, Ancona & Caldwell, 1992). Innovation is especially pervasive since it may involve improvement of products and services across all business operations (Gersick, 1994; Keck & Tushman, 1993; Knaup, 2005), and clearly communication of necessary information is highly relevant. Nowadays, innovation is emphasized in almost every business setting (Byrne, 1993), and venture activities of small businesses are critical for sustainability (Igatura, Garrigós, & Hervas-Oliver, 2010). Little research has examined venture interpersonal effectiveness in small businesses and just how these actions and processes affect business operations.

The Interpersonal Processing Activities and Sequence

Even though research is surfacing about dissemination of interpersonal process and the impact on small business, to know more specifically how these activities best enhance key business elements such as management policy, financing, and innovation will help clarify their influence across business operations. We are concentrating on small businesses managers, since a significant percentage of the U.S. jobs and revenue in our economy depend on them. The updated U.S. Small Business Administration profile shows that small businesses added 1.9 million net new jobs in 2007 (SBA, 2007). We will describe what interpersonal process activities most influence operational activities, and if the manner in which they are disseminated matters.

At present, little empirical work examines how manager information dissemination of interpersonal process information affects small business operational perspectives. Despite a vast literature of group dynamics, little research has addressed within-venture processes in the business setting (Watson et al., 1991). Project teams and executive teams need certain boundary roles to survive within organizations (Ancona & Caldwell, 1992; Ancona & Nadler, 1989). Product teams need to be in sync with their communication within and between teams, and cross-functional team integration with the firm is always a critical issue (Hitt, 1993). The small business venture is a different context. Certainly, they face critical interdependencies with customers and suppliers, but they do not have the buffered timeline that exists under the more protective umbrella maintained by large businesses. Research has pointed to interpersonal process issues involving communication, shared vision, and conflict, which have been assumed to affect small business employee relations but, very little investigation has described the sequence of the dissemination of these processes. That is, does the presentation of the order of the processes affect policy, financing, and innovation differently? The present study develops a

model for examining team interpersonal process effectiveness, and how these behaviors may influence business policies, innovation, and financing.

Manager assessments and evaluations of the skills and compatibilities among small business employees have been related to the success of a venture business (Osgood & Wetzel, 1976; Timmons, 1984; Webster, 1976). In addition, Brundin, Patzelt, & Shepherd (2008), found displayed confidence and emotional support, by managers in employees, increased the employees' willingness to act entrepreneurially, an important entity for knowledge creation. Since, process effectiveness influences the proficiency with which venture employees operate as a unit, it is important to examine how managers describe their interaction activities and how these relate to operational and innovative decisions. We will extend this viewpoint to describe a small business interpersonal process model. Findings will describe how small business information sharing strategies affect business policies and influence performance observations by offering specifics of process dimensions and how the sequencing of these process by affect the extent of manager influence. This description will assist researchers to understand how small business managers' communication is pervasive across their ventures, and how possible adjustment of their dissemination of information may more positively impact venture effectiveness.

Hypotheses and Research Question

Manager actions have a profound influence on the work relationship, and this study focuses on manager applications of interpersonal behaviors in currently operating ventures, where managers are actively involved in the daily business operations (e.g., see Kotkin, 1986; Mamis, 1983). Supervisors are key elements of the social work environment for positive change (Janssen et al., 2004), and the manner in which managers address and promote improvement and sustainability does matter. Successful influencers focus on personal communication and information exchange, referred to as a participative management style (Monge, Cozzens, & Contractor, 1992). This makes for a more cooperative environment enabling effective information sharing among employees and supervisors that leads to the increased likelihood of innovation (Janssen et al., 2004). The communication by managers is strongly influenced by current organizational policies. The current policies in place also affect an employee's willingness to be innovative which ultimately impacts performance (Monge et al., 1992). Managers should be mindful that it is important to incorporate policies that enable them to

empower the employees by promoting individual unique talents that are congruent with the current environment and direction of the organization (Hmieleski & Ensley, 2007).

Manager interpersonal processes are significant for employee bonding, conflict management, communication of goals, roles, and responsibilities (Bird, 1989; DeChurch & Mesmer-Magnus, 2010; Timmons, 1990). These interpersonal activities should positively support management policy that establishes the avenue for allocation of resources and setting objectives (Gomez-Mejia, Balkin, & Cardy (2008). We propose that manager dissemination of task and relational information will have a positive influence on policy decisions.

H1: There is a positive relationship between task and relational activities and management policy, finance activities, and innovation.

Task and relational information are two important dimensions in the interpersonal process context (Watson, et al., 2003). Similarly, consideration and initiating structure leader behaviors and employee participation are critical in effective management (Halpin & Winer; 1957; Katz & Kahn, 1952; Likert, 1961). What has not been investigated is a specific approach to the dissemination of this manager to employee communication. Our research question queries the best sequence for this information sharing in this small business context?

Hellmann (2007) claims that a large number of entrepreneurs originate in established companies, however, whether they remain with the organization or go outside to pursue their innovation is influenced by the organization's policies on exploration vs. exploitation (see March & Olsen, 1991). Policies influence how supervisors respond to innovative ideas voiced by employees (Janssen et al., 2004). To encourage innovative thinking by employees, owners of small firms work to promote an exploratory environment. The owners of entrepreneurial firms, unlike middle managers in larger firms, are able to depict their own procedures and policies thus allowing for more control over policies and allowance of exploration of innovative ideas (Hmieleski & Ensley, 2007). The risk of pursuing a more exploratory policy can lead to resistance by coworkers and supervisors, however it can be profitable as well (Hellman, 2007; Janssen et al., 2004). Overall, the way in which the leader communicates facilitates innovation (Janssen et al., 2004; Monge et al., 1992; Albrecht and Ropp, 1984). Therefore, we offer:

Managers are responsible for making decisions regarding the direction of the organization or small business (Patterson, 2009), and their approach will prove important as it

impacts positive environments (Hmieleski & Ensley, 2007; Boeddrich, 2004). The policy a manager adopts regulates the work environment and the amount of contribution provided by employees. Managers' support influences employee actions as they hold the key to essential resources such as, information, materials, funding, and personal support (Patterson, 2009). Without access to these resources, creative ideas would be dismissed or pursued by employees outside the organization (Hellman, 2007; Janssen et al., 2004).

Personal support is a non-mandatory articulated action or inspiration that impacts employee innovation. An environment that allows for employees to develop ideas and encourages abstract thinking is one more likely way to produce an innovative stream. By not encouraging employees to brainstorm ideas, or show support in their effort, employee's goals are likely to become decoupled from the organizations (Boeddrich, 2004). In Janssen et al. (2004) the cultivation of ideas was linked to how the mastery-oriented supervisor utilized information provided by employees. This type of supervisor is willing to learn from employees and is likely to aide with the aforementioned tools such as providing financial resources or personal support. In addition, Patterson (2009) discusses how managers drive the innovation, work by fine tuning it, and continually manage it for improvement. As the main 'driver' of the organization, the manager decides direction and allocation of funds, or investments, for integrative projects.

Therefore, management affects quality both directly and indirectly. Managers can create an environment conducive for innovation by encouraging employees that indirectly influences employees' production of creative ideas and keeps their goals aligned with the organizations (Boeddrich, 2004). In addition, managers can impact strategies directly through financial investment in research and development. Imperative to the above, managers must assess the environment and policies in place in order to determine whether to invest in a project. Boeddrich (2004) argues that it is the soft factors, such as the interaction and environment which lead to desired performance hard factors such as ROI and market shares.

We, therefore, assume that task processes will mediate the relational process to manager operations. A mediator is a variable that describes a stronger relationship between an independent variable and the dependent variable (Hair et al., 2006), and basically facilitates the relationship between two variables. Mediation analysis does not establish causality but can describe the possibility. In this case, we take the mediator, task processes, to be a link in a causal chain. For instance, manager originated communication of relational processes establishes a

supportive and positive climate that promotes the communication of task processes which facilitates manager reports of business operations. This mediated linkage is stronger than just task or relational processes alone, and this sequence is a stronger set of relationships than the task to relational processes to operations. We offer the following hypotheses:

H2: Task processes will mediate the relationship of relational processes to innovation.
H3: Task processes will mediate the relationship of relational processes to management policy.
H4: Task processes will mediate the relationship of relational processes to finance activities.

## METHOD

### Procedure

The data were obtained from 1201 small businesses managers of which 839 or 69.6% were males and 361or 29.9% were females. The average age of respondents was 43.30 (sd = 11.69) and the average years of time in this business was 14.31 (sd = 7.35). All participants stated that they were the primary manager and were involved in the day-to-day operation of their business. Regarding the type of business, 18% of the businesses were retail, 46.2% were services, 3.6% were wholesale, 5.1% were manufacturing, 7.4% were construction, and 18.4% were classified as other. Manager's education was 25.7% high school education, 6.6% vocational training, 11.6% associate's degrees, 38.1% bachelor's degrees, 11.6% master's degrees, and 4.1% doctorates. 80% of the businesses were in business 3 years or more.

Upper level entrepreneurship students in the business school at a southwestern university in the United States were given a class assignment to obtain a completed survey from two different small businesses in their metropolitan area. The 1201 businesses consisted of more than 4 employees and less than 60 employees. The manager completed the survey when the student presented it, or the student made an appointment to return and collect the survey within one week. Managers were assured of the confidentiality of their responses.

### Actions to reduce common method variance

The data gathered were self-report on one questionnaire at one point in time, which can have limitations (cf. Mitchell, 1985; Podsakoff and Organ, 1986). Returning to these businesses at a later date to gather this information at two points in time was not feasible due to the demands of their operations. This is somewhat common in field research due to the difficulty of

multimethod data gathering. We did conduct the following steps to reduce biases including common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Confidentiality was insured for each respondent. Each participant was identified with a number for that business. This diminished social desirability, respondent leniency, and taking on perceptions consistent with the researchers. Also, faculty that developed the survey items examined scale items for ambiguity, vague concepts, complicated syntax, focusing on one issue per item, and simplicity. Bi-polar scales were avoided, and different endpoints were used on the process and performance scales. Thus, given our single format for data collection, our primary potential limitation is one of common method variance, but we did attempt to strengthen our case. Often, even return rates are not reported in survey research (Podsakoff and Organ, 1986). In our case, we had an 85% return rate, which is higher than most since students made appointments with managers to collect data. Also, our data came from a wide variety of businesses, which should cancel chance imbalances (Isaac and Michael, 1990). In addition, a Harman's single-factor test of the primary variables did not produce a single or general factor, which, if present, would suggest common method variance (Podsakoff and Organ, 1986). For these reasons, we believe that a common format does not jeopardize the credibility of the statistical relationships.

Measures

*Interpersonal Processes*. The measure for interpersonal processes in small businesses (Watson, et al., 2003) consists of ten items that defined two factors: relational processes (7 items) and task processes (8 items) which were on a five point Likert-type interval scale. The verbal anchors for the process items range from "not at all" to "very little" to "moderately" to "extremely well." These items describe how the manager works with their employees regarding interpersonal dissemination of information. The relational activities factor contains items: coordinating interaction, resolving conflict, openly sharing information, being friendly and cooperative, contributing to employee performance, and showing enthusiasm for employee performance. The task activities factor contains items such as set goals effectively, continual improvement, and set high quality standards.

The items described were defined by using a ground theory technique and application of qualitative content analyses (Strauss & Corbin, 1990). This was a systematic procedure for inductively generating and then synthesizing descriptions of characteristics that make up the phenomenon of "interpersonal process effectiveness." This was accomplished by conducting

problem-solving sessions with many actual small businesses in which members focused on specifics that directly affected effective and ineffective interpersonal process. These items were then test through linear models and substantiated (Watson, et al., 1995). These items may be modified following our meetings with current small business managers.

*Management Policy, Financial Structure, and Innovation*. These measures (adapted from Chen, Greene, & Crick, 1998), consist of eleven items that define three factors: management policy (3 items) and financial structure (3 items), and innovation (5 items) which are on a seven point Likert-type interval scale that range from not at all/very little to moderately well to extremely well. The management policy factor contains items such as define organizational roles. Achieve objectives, work under pressure, and control costs. The financial structure factor includes items such as set and attain profit goals, set sales goals, perform market analyses. The innovation factor contains items such as break into new markets, expand the business, establish market position, and introduce new products and services.

Data Analysis

Maximum likelihood estimation, used because of its robustness to violations of normality in the data, was employed to conduct a confirmatory factor analysis on the items used. Goodness of fit indices used to assess the adequacy of the factor models were the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the non-normed fit index (NNFI), the goodness of fit index (GFI), and the chi-square divided by its degrees of freedom ($\chi^2$/df). Acceptable levels for these fit indices as recommended by Bentler (1995) and Browne & Cudeck (1993) are .05 or lower for the RMSEA, .90 or higher for the fit indices, and 5 or lower for the $\chi^2$/df. Modifications as suggested by Tabachnick and Fidell (2007) were employed to obtain revised factor models. Modifications were made in which each variable that contributed to the largest residual in the analysis was removed and then the result was a significant improvement in the change of the chi square statistic.

Five factors, namely, Management Policy, Financial Structure, Innovation, Relational Information, and Task Information, were validated using a confirmatory model. Cronbach alpha internal consistency reliability estimates for these six five constructs were .73, .83, .85, .85, and .73, respectively. Note that a level of .70 or higher for Cronbach's alpha is considered acceptable for basic research (Nunnally, 1973). The results of the confirmatory analysis validate the

constructs and show an excellent model fit as indicated by the following measures: RMSEA = .049, CFI = .945, NNFI = .945, GFI = .932, and $\chi^2$/df = 3.38.

Hypothesis 1 stated there would be a positive relationship of relational information and task information to management policy, innovation, and financial activities. As shown in Table 1, relational processes and task processes were significantly correlated with these variables.

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Insert Table 1 about here

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We developed six mediated models with dependent variables of management policy, innovation, and financial activities (Baron & Kenny, 1986). We hypothesized that task processes would mediate relational processes to each of the dependent variables and would be the strongest set of relationships. Each of our hypothesized mediations was significant as partial mediators with the dependent variables: innovation (Sobel Z = 8.54, $p < .001$, 78.02% mediated), financial activities (Sobel Z = 9.62, $p < .001$, 78.27% mediated), management policy (Sobel Z = 13.36, $p < .001$, 68.11% mediated). For verification, we ran 3 other models with relational process as the mediator that were not significant.

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Insert Tables 2, 3, and 4 about here

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## Discussion

We examined manager interpersonal processes that are critical elements of a model for small business viability. Our model included task and relational information measures and described their positive relation with management policy, financial activities, and innovation. We were concerned with manager dissemination of task and relational information and how these processes might best be communicated. Following a stream of management and interpersonal

behavior research, we used these two interpersonal process dimensions to describe their communication. Task information involved sharing data about continual improvement and high quality standards, while relational information involved sharing data about how to be cooperative, the coordination of interaction and showing enthusiasm for employees. These processes did have a significant influence on management policy, financial structure, and innovation.

The additional question we had about interpersonal processes was does the sequence in which they are communicated make a difference to manager reports of business operations? We used mediation analyses to evaluate this possible communication order. Our hypotheses were that task process would mediate relational process as the strongest facilitated linkage to management policy, financing, and innovation. Our literature review supported the notion that establishing a cooperative and supportive climate would enhance subsequent task activities. We used both relational processes and then task processes as mediators to test this assumption. That is, we used task information as a mediator and then similarly relational information, and the task process mediator was significant with all three operational constructs, while the interpersonal process were not significant mediators in any case. The model shows that manager dissemination of relational communication and then task communication results in manager reports of greater levels of performance regarding management policy, financial activities, and innovation. We realize the data was a one point in time study, but this mediation analysis is an initial step in defining a causal finding (Baron & Kenny, 1986).

Implications for Small Businesses

An important application to small business is that task and relational interpersonal processes are critical elements in a venture operation, and we have given examples of the more specific behaviors that constitute each dimension. These specifics should assist managers in understanding the activities and the sequence to apply regarding communicating with employees, and that this communication positively connects to management policy, financial structure, and innovation. About 80% of the ventures in this study were in business 3 years or more, which represents a significant number of viable operations. A very interesting finding is that the sequence with which managers communicate relational and task processes appears to make a

difference. When managers establish a supportive and positive relational context and then disseminate task processes, they report a much higher level of operational outcomes. Mediation analysis doesn't mean causality but it does suggest this is a path to explore as a reasonable possibility. We reported from the literature that when managers establish a positive, supportive climate the generation of ideas and creative approaches increased. Little research has explored this in the small business context, and we found no research to examine these interpersonal processes and this particular sequencing of dissemination. The mediations indicate the possibility that when managers communicate relational information initially such as cooperativeness and managing conflict, and then communicate task information such as continual improvement issues, they report much higher levels of management structure, financial structure, and innovation regarding their businesses. These are skills that are learned and can be taught. Hopefully this investigation will assist managers in making their businesses more viable.

Limitations and Future Research

In the method section we gave details of our actions to reduce common method variance. We do realize this is a one point in time study, but due to the impracticality of collecting this type of information from managers over several points in time would not lend itself to this kind of sample size. This would be a consideration for future work that might be smaller in scope and conducted across multiple time points. In addition, continued investigation of this nature could include personality variables to examine if those traits affect the nature of manager information dissemination. The Big 5, internal/external locus of control, and emotional intelligence would be among a few possibilities. Expanding the measure of interpersonal processes would be another addition. Our items came from a grounded theory approach, but additional measures of the process constructs would be a definite plus. We think that we have shown a viable operational model for small businesses. The items used for measures are easily translated into actual business activities that can be considered for use in actual business operations. We strongly encourage more research in this area.

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**Table 1. Descriptive Results and Correlations[a]**

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1. Innovation | 22.98 | 6.14 | 0.82* | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2. Finance | 14.46 | 3.71 | 0.62 | 0.84* | | | |
| 3. Mgmt. Policy | 21.11 | 3.74 | 0.54 | 0.62 | 0.81* | | |
| 4. Relational Information | 35.05 | 4.61 | 0.26 | 0.31 | 0.44 | 0.79* | |
| 5. Task Information | 17.01 | 2.44 | 0.35 | 0.42 | 0.52 | 0.58 | 0.78* |

*cronbach alphs
[a] all correlations equal to or greater than .26 are two-tailed significant at p < .05

## Table 2. Innovation as Dependent Variable

Model with dv regressed on iv

```
Source |       SS       df       MS              Number of obs =    1068
-------------+------------------------------   F(  1,  1066) =   87.77
       Model |  4159.17653     1  4159.17653   Prob > F      =  0.0000
    Residual |  50516.0398  1066   47.388405   R-squared     =  0.0761
-------------+------------------------------   Adj R-squared =  0.0752
       Total |  54675.2163  1067  51.2420021   Root MSE      =  6.8839

------------------------------------------------------------------------------
       Innov |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  synergy_me |   .2955776   .0315503     9.37   0.000     .2336698    .3574854
       _cons |   12.24621   1.667652     7.34   0.000     8.973954    15.51846
------------------------------------------------------------------------------

Source |       SS       df       MS              Number of obs =    1068
-------------+------------------------------   F(  1,  1066) =  758.13
       Model |  6045.33037     1  6045.33037   Prob > F      =  0.0000
    Residual |  8500.26795  1066  7.97398494   R-squared     =  0.4156
-------------+------------------------------   Adj R-squared =  0.4151
       Total |  14545.5983  1067  13.6322383   Root MSE      =  2.8238

------------------------------------------------------------------------------
direction_me |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
```

```
-------------+----------------------------------------------------------------
 synergy_me |   .3563509   .0129421    27.53   0.000     .330956    .3817459
      _cons |   10.10459   .6840803    14.77   0.000    8.762295    11.44689
------------------------------------------------------------------------------
```

Model with dv regressed on mediator and iv

```
      Source |       SS       df       MS              Number of obs =    1068
-------------+------------------------------           F(  2,  1065) =   87.54
       Model |  7719.37221     2   3859.6861           Prob > F      =  0.0000
    Residual |  46955.8441  1065  44.0899944           R-squared     =  0.1412
-------------+------------------------------           Adj R-squared =  0.1396
       Total |  54675.2163  1067  51.2420021           Root MSE      =    6.64
------------------------------------------------------------------------------
      Innov |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
direction_me |   .6471734   .0720201     8.99   0.000     .5058559    .7884908
 synergy_me |   .0649568   .0398096     1.63   0.103    -.0131573    .1430709
      _cons |   5.706784   1.765527     3.23   0.001     2.242477    9.171091
------------------------------------------------------------------------------
```

**Sobel-Goodman Mediation Tests**

| **Coef** | **Std Err** | **Z** | **P>\|Z\|** |
|---|---|---|---|
| **Sobel** | **.23062083** | **.02699661** | **8.543** | **.0001** |
| **Goodman-1** | **.23062083** | **.0270127** | **8.537** | **.0001** |
| **Goodman-2** | **.23062083** | **.02698051** | **8.548** | **.0001** |

**Pecent of total effect that is mediated: 78.02 %**

**Ratio of indirect to direct effect: 3.5504**

## Table 3. Finance as Dependent Variable

Model with dv regressed on iv

```
      Source |       SS       df       MS              Number of obs =    1075
-------------+------------------------------           F(  1,  1073) =  104.13
       Model |  2307.20351     1  2307.20351           Prob > F      =  0.0000
    Residual |  23773.9184  1073  22.1564943           R-squared     =  0.0885
```

```
-------------+------------------------------           Adj R-squared =  0.0876
       Total |  26081.1219  1074  24.2840986          Root MSE      =  4.7071
------------------------------------------------------------------------------
       finan |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  synergy_me |   .2173055    .021295    10.20   0.000     .1755209    .2590902
       _cons |   7.439318   1.124959     6.61   0.000     5.231949    9.646687
------------------------------------------------------------------------------
Model with mediator regressed on iv
Source |       SS       df       MS              Number of obs =    1075
-------------+------------------------------           F(  1,  1073) =  705.64
       Model |  5825.60287     1  5825.60287          Prob > F      =  0.0000
    Residual |  8858.46783  1073  8.25579481          R-squared     =  0.3967
-------------+------------------------------           Adj R-squared =  0.3962
       Total |  14684.0707  1074  13.6723191          Root MSE      =  2.8733
------------------------------------------------------------------------------
direction_me |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  synergy_me |   .3453013   .0129989    26.56   0.000     .3197951    .3708075
       _cons |   10.68177   .6866977    15.56   0.000     9.334347    12.02919
------------------------------------------------------------------------------


Model with dv regressed on mediator and iv
Source |       SS       df       MS              Number of obs =    1075
-------------+------------------------------           F(  2,  1072) =  110.46
       Model |  4456.40349     2  2228.20174          Prob > F      =  0.0000
    Residual |  21624.7184  1072  20.1723119          R-squared     =  0.1709
-------------+------------------------------           Adj R-squared =  0.1693
       Total |  26081.1219  1074  24.2840986          Root MSE      =  4.4914
------------------------------------------------------------------------------
       finan |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
```

```
-------------+----------------------------------------------------------------
direction_me |    .49256   .0477198    10.32   0.000     .3989252    .5861948
  synergy_me |   .0472239   .0261607     1.81   0.071    -.0041081    .0985559
       _cons |   2.177905   1.188287     1.83   0.067    -.1537276    4.509538
------------------------------------------------------------------------------
```

**Sobel-Goodman Mediation Tests**

| | Coef | Std Err | Z | P>\|Z\| |
|---|---|---|---|---|
| **Sobel** | **.17008161** | **.01767795** | **9.621** | **.0001** |
| **Goodman-1** | **.17008161** | **.01768883** | **9.615** | **.0001** |
| **Goodman-2** | **.17008161** | **.01766707** | **9.627** | **.0001** |

**Pecent of total effect that is mediated: 78.27 %**

**Ratio of indirect to direct effect: 3.6016**

## Table 4. Management Policy as Dependent Variable

Model with dv regressed on iv

```
Source |       SS       df       MS              Number of obs =    1088
-------------+------------------------------   F(  1,  1086) =  274.47
       Model |  6134.54534     1  6134.54534   Prob > F      =  0.0000
    Residual |  24272.5493  1086  22.3504137   R-squared     =  0.2017
-------------+------------------------------   Adj R-squared =  0.2010
       Total |  30407.0947  1087  27.9734082   Root MSE      =  4.7276
------------------------------------------------------------------------------
        mgmt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  synergy_me |   .3547968   .0214156    16.57   0.000     .312776    .3968175
       _cons |    13.2924   1.131487    11.75   0.000    11.07225    15.51255
------------------------------------------------------------------------------
```

Model with mediator regressed on iv

```
Source |       SS       df       MS              Number of obs =    1088
-------------+------------------------------   F(  1,  1086) =  705.95
       Model |  5811.7462     1  5811.7462   Prob > F      =  0.0000
```

```
   Residual |  8940.47439  1086  8.23248102          R-squared     =  0.3940
-------------+------------------------------          Adj R-squared =  0.3934
       Total |  14752.2206  1087  13.5715001          Root MSE      =  2.8692
------------------------------------------------------------------------------
direction_me |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  synergy_me |   .3453359   .0129973    26.57   0.000     .3198332    .3708386
       _cons |   10.69173   .6867083    15.57   0.000     9.344302    12.03915
------------------------------------------------------------------------------
Model with dv regressed on mediator and iv
Source |       SS       df       MS              Number of obs =    1088
-------------+------------------------------          F(  2,  1085) =  286.66
       Model |  10512.4766     2  5256.23832          Prob > F      =  0.0000
   Residual |   19894.618  1085  18.3360535          R-squared     =  0.3457
-------------+------------------------------          Adj R-squared =  0.3445
       Total |  30407.0947  1087  27.9734082          Root MSE      =  4.2821


------------------------------------------------------------------------------
       mgmt |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
direction_me |   .6997682   .0452869    15.45   0.000     .6109083     .788628
  synergy_me |   .1131417   .0249167     4.54   0.000     .0642514     .162032
       _cons |   5.810672   1.133473     5.13   0.000     3.586625    8.034718
------------------------------------------------------------------------------
```

**Sobel-Goodman Mediation Tests**

| | Coef | Std Err | Z | P>\|Z\| |
|---|---|---|---|---|
| **Sobel** | **.2416551** | **.01809159** | **13.36** | **.0001** |
| **Goodman-1** | **.2416551** | **.01810116** | **13.35** | **.0001** |
| **Goodman-2** | **.2416551** | **.01808201** | **13.36** | **.0001** |

**Pecent of total effect that is mediated:  68.11 %**

**Ratio of indirect to direct effect:  2.1359**