

Incorporating Problem-Solving Theory and Social Capital Theory to Improve Entrepreneurial Goal Attainment

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Abstract

The purpose of this conceptual paper was to examine the theoretical underpinnings of problem solving and social capital within the context of entrepreneurial activities and develop a model to explain the phenomenon that occurs during the problem solving process. An analysis of the literature found salient themes in both problem solving and social capital theories that supported a process one may use to leverage social capital for the purpose of attaining a goal. Social capital theories discussed include Weak Tie theory, Structural Hole theory, and Social Resource theory. With regard to problem solving, Kirton's Adaption-Innovation theory supports the model by giving explanation to finding solutions to complex problems and maintaining network dynamics resulting from dissimilar problem solving styles while completing the problem solving process. The literature indicates that the problem solving process of the entrepreneur provides the foundation for goal attainment. If the identified obstacles are perceived as simple to solve, the entrepreneur may work independently to attain the goal. On the other hand, a goal with a high degree of complexity may require social capital to be leveraged. Once resources have been negotiated with a contact, the entrepreneur must maintain the dynamics of the network so that work is efficiently spent on goal attainment and not on distractions due to problem solving style; despite deficiencies in communication, work and trust. It is the hope of the authors that researchers will empirically test the research proposition in this model to create better insight to how entrepreneurs make these decisions.

Key words: Social Capital, Problem Solving, Adaption-Innovation, Entrepreneurship, International Development

Introduction

One of the most critical elements in an extension strategy to facilitate entrepreneurial activities is building social capital (Swanson & Samy, 2002). Research has indicated that leveraging social capital has beneficial effects on assisting an individual in accomplishing their intended objectives (Lin, Ensel & Vaughn, 1981a, 1981b). Yet, the literature is ambiguous in terms of how cognitive processes and individual characteristics interact while attaining these objectives.

If an entrepreneur leverages embedded resources from their network to solve complex problems, an examination of the problem-solving process (Dewey, 1910) may give insight to how entrepreneurs utilize social capital to their benefit in attaining their goal. However, leveraging social capital to solve complex problems may be more challenging than simply asking for help and following the steps of a cognitive process. Kirton (2003) claimed that complex problems require a variety of problem solving styles to find a suitable solution. Yet, as the dissimilarity of individuals' problem-solving styles increase, difficulties in communicating and working together becomes more evident. This paradox adds complications to entrepreneurs utilizing their social capital as a vehicle for overcoming obstacles they may face. Exploring this phenomenon may add insight in to the dynamics which occurs for entrepreneurial problem solving and help to explain the intricacies of the goal-attainment process.

Purpose and Objectives

The purpose of this conceptual paper was to examine the theoretical underpinnings of problem solving and social capital within the context of entrepreneurial activities and to develop a model to explain the phenomenon that occurs during the problem-solving process. Such a model may bring insight to helping entrepreneurs effectively build and leverage social capital to accomplish their goals. Further, this paper is intended to facilitate future research in this field.

Theoretical Themes

An analysis of the literature found salient themes in both problem solving and social capital theories that supported a process one may use to leverage social capital for the purpose of attaining a goal. The foundation lies in the cognitive process of problem solving, which is the highest level of thinking (Gagne, 1965) and is employed every day by all people (Treffinger, Isaksen, & Dorval, 1994). This process begins with a felt need that leads to a desired goal (Lewin, 1951). The process seems to end with the attainment of the desired goal; however, often a solution to a problem creates another problem (unintended consequences) needing to be solved by the entrepreneur and therefore creating a cyclical process (Pretz, Naples, & Sternberg, 2003). If the problem to be solved for goal attainment is simple or is low in complexity, the entrepreneur may choose to work individually. Conversely, a complex problem may require the help of others to attain the goal. Funke and Frensch (1995) defined a complex problem with the following characteristics: novel to the individual, multifaceted obstacles impeding goal attainment, dynamic changes during the problem solving process and limited ability to monitor progress towards goal attainment due to uncertainty of the given situation. On the other hand, a simple problem may have only one barrier and the problem solver may attain their goal with little cognitive activity (Funke and Frensch).

In our search of the literature, there were no theoretical claims determining if complex problems could be solved by the individual or if social capital must be leveraged to solve complex problems. However, the characteristics of a complex problem as defined by Funke and

Frensch do indicate that the entrepreneur must solicit alternative views, acquire knowledge of unknowns and monitor progress to reach goal attainment. Further, Kirton (2003) provided evidence that suitable solutions to complex problems require diversity of thought in problem solving style; through solicitation of individuals with different problem solving styles or through operating in different problem solving styles oneself. The decision to leverage social capital is more complicated than just determining if a problem is simple or complex. Indeed, these terms are relative to the problem-solving capacity of the problem solver and influenced by past experiences, knowledge and skills, emotions, motivations, values, and beliefs (Frensch & Funke, 1995; Kirton, 2003). That is, one entrepreneur may have learned from past experiences and be highly motivated to solve a complex problem, while the less skilled entrepreneur with less stamina may immediately leverage social capital. We do know that two primary motives for not asking for help include overconfidence and injury to self-esteem (Chung, 2005). An entrepreneur with the former motive overestimates his or her competence and the latter motive brings fears of being perceived as incompetent.

Salient Theories of Problem Solving

In examining similar theoretical constructs of problem solving with regard to social capital, prominent components of problem solving include the cognitive process and the individual's style and level of problem solving. Kirton's (2003) theory of adaption-innovation also lends support to managing individual differences during the problem-solving process and is discussed subsequently as *Problem A and Problem B* in the management of diversity.

Problem-Solving Process. Many authors have published different versions of the problem-solving process; each supporting their model with evidence or theoretical supposition for specific situations. Many problem-solving process models are traced back to Dewey (1910), who claimed five stages to problem solving: perceiving a difficulty, defining the problem, suggesting possible solutions, analyzing implications of solutions and testing validity of solutions. Pretz, Naples, and Sternberg (2003) proposed a seven-stage process to problem solving including: recognize or identify the problem, define and represent the problem mentally, develop a solution strategy, organize knowledge about the problem, allocate mental and physical resources, monitor progress towards goal, and evaluate solution for accuracy. However, a close examination of these seven steps can determine that these two versions are very similar; or at least identical with the latter providing sub stages within the problem-solving process (Lubart, 2001). In fact, most problem-solving processes can be generalized to a four-stage model including: identifying the problem (or obstacles to a solution), generating solutions, evaluating for an appropriate solution, and implementing the chosen solution (Nickerson, 1999; see Swartz & Perkins, 1990). Brodeur (2006) argues that the problem-solving process is inherently different than the individual cognitive process often cited in the literature. However, Kirton (2003) claimed that "Individuals collaborate in groups to enhance individual problem solving" (p. 225) which indicates that the individual's cognitive process forms the basis of problem solving to which other group members conform as a result. For the entrepreneur, this suggests that he drives the problem-solving process.

Problem-Solving Style and Level. Kirton (2003) claimed that problem-solving style is independent from problem-solving level or intelligence. Whereas problem-solving style designates if an individual solves problems more adaptively or more innovatively, problem-

solving level designates an individual's knowledge, skills, and ability to recognize patterns (Frederiksen, 1984). The separation of style from level is the strength of Kirton's (2003) Adaption-Innovation theory as both variables can be measured and assessed individually as contributing factors to an entrepreneur's problem-solving performance.

In determining problem-solving style, Kirton (2003) placed adaptation and innovation on a continuum as individuals are not either adaptive or innovative, but rather more adaptive or more innovative determined by an interval scale. With 95 points as a midpoint, individuals scoring less than 95 points are considered adaptive with the degree of adaptiveness increasing as the problem solving style score decreases. A more adaptive individual has preferences to solve problems with a narrow focus to improve efficiency within a system. A problem-solving style score higher than 95 points indicates innovativeness and the degree of innovativeness increases as the score increases. A more innovative individual has preferences to solve problems with a broad focus to make things different by working across systems. Kirton has provided substantial evidence (empirical and theoretical) that problem-solving style is a stable preference that is fixed and innate. Preferred problem-solving style does not change with age or situation (Kirton).

If two individuals differ more than 20 points on the adaption-innovation scale, there will be difficulties in communication, work, and trust while working together in the problem-solving process (Kirton, 2003). However, if there is little degree of dissimilarity between the two individuals' problem-solving styles, there will be limitations to their ability to solve complex problems (Kirton). Fortunately, with the proper motivation, one can operate outside of his/her problem-solving style to work with other individuals and solve problems better that require a different style; albeit psychologically taxing (Kirton). For example, an innovative entrepreneur may find it difficult to communicate, work with, and trust more adaptive individuals during the process of planning a budget; even though the entrepreneur may realize the adaptive individual is better at this task due to his organized systems to make things more efficient. Further, the innovative entrepreneur may dislike planning a budget himself due to his innovative preferences. Yet the entrepreneur will do this task despite this dislike as he realizes the importance of budgeting. If the reward of attaining the goal outweighs the psychological stress of operating outside their preferred problem-solving style, the entrepreneurs will alter their problem-solving style to work with individuals and problems to attain the goal (Kirton).

Problem A and Problem B. A component of Kirton's Adaption-Innovation theory specifically describes how diversity of problem-solving style can be difficult to maintain during the problem solving process. Kirton (2003) classified the entrepreneur's ascertained goal to attain as Problem A. The innovative entrepreneur may ask an adaptive individual for help with Problem A realizing that he or she needs adaptive assistance. However, with the adaptive individual comes difficulties in communication, work, and trust; thus creating Problem B (Kirton). Problem B is inherent to complex problems as a diversity of problem-solving styles are necessary to suitably solve complex problems, but dissimilar problem-solving styles (greater than 20 points) interacting in the problem-solving process indubitably will create difficulty in communication, work, and trust. Sometimes, the difference of style is so great that the assisting individual may begin working on other solutions to problems not related to the goal at hand; thus creating another Problem B (Kirton). That is, any problem distracting efforts from the ascertained goal (Problem A) is a Problem B because groups can only work on one problem at a time (Kirton). Throughout the problem-solving process, it is the responsibility of the

entrepreneur to enable progress on Problem A and extinguish Problem B. Typically, this involves keeping individuals motivated to work on Problem A when their problem-solving style is needed and maintaining the relationship with the assistant until their problem-solving style is needed again.

Salient Theories of Social Capital

Social capital consists of the resources that are embedded within people's social networks. Coleman (1988, p.16) has defined social capital by its function as "a variety of entities with two elements in common: they all consist of some aspect of social structures, and they facilitate certain action of actors – whether persons or corporate actors – within the structure." He identified three forms of social capital: one, obligations, expectations and trustworthiness of structures; two, information; and three, norms and effective sanctions (Coleman). Obligations, expectations, and trustworthiness refer to an individual's understanding that if he or she does something for someone, they trust that their actions will be reciprocated sometime in the future. Coleman believed that the more social credit is extended within a network, the higher the level of social capital that will exist. The second form of social capital refers to the fact that the potential for information is inherent in a social network and that individuals indirectly take advantage of others' knowledge, skills and other forms of human capital. Lastly, the third form involves norms and how they are created through the relations within a network. Within an entrepreneurial context, social capital represents an additional vehicle in which an individual can build human capital and advance the agendas of both themselves and other members of their network.

Lin (1999) defined social capital as an investment in resources embedded in a social structure or network, which dependent upon embeddedness, accessibility and use an individual can gain levels of social access that can increase expected returns of beneficial actions of others (Lin, 1999). In other words, social capital refers to the use of social resources, such as relationships and ties, and the expected returns from these social investments to generate individual assets and opportunities (i.e., better job, increased pay, career decision). Lin (1999) suggested that social capital can be analyzed by the amount or variety of resources the individual, or ego, has either directly or indirectly with a known social network or group of contacts. Furthermore, Lin (1999) suggested that social capital can be more specifically defined as network resources and contact resources, such as wealth, power and status that aid the ego in generating social capital.

Weak Tie Theory. Many approaches have been made to conceptualize social capital. The most notable of these are weak tie theory (Granovetter, 1973), structural hole theory (Burt, 1992), and social resources theory (Lin, Ensel, & Vaughn, 1981a, , 1981b). The first approach was the strength of weak ties theory, which was introduced by Granovetter (1973). The weak tie theory demonstrated that job opportunities for mid-level managers were most likely to come from an individual's weak ties versus the strong connections in their network. Strong ties consisted of close relationships (family, co-workers, close friends) that provided information that was widely shared and became quickly redundant within the clique. Granovetter (1973) viewed weak ties as a connection to densely knit networks outside the individual's direct contacts which could provide non-redundant information. Granovetter found that it was more likely that weak ties rather than strong ties would provide a greater opportunity for new information about job leads. Therefore, the weak tie theory focused on the characteristics of the tie between actors.

Structural Hole Theory. The second approach was introduced by Burt (1992), who identified gaps that existed between two groups of individuals within a network. The gaps were referred to as 'structural holes'. The focus was on the pattern of relations among the contacts within an individual's network. This was quite different from the weak tie theory as it did not focus on the characteristics of the ties. Burt's structural hole theory postulated that those individuals who possess many structural holes within their network are in an advantageous position, both from a power position and with regards to upward mobility. Burt (1992) believed that the structural hole theory addressed the bridging properties more succinctly than did the weak tie theory and as a result provided a stronger foundation for theory.

Social Resource Theory. The third approach to social capital was the social resources theory (Lin, Ensel, & Vaughn, 1981a, , 1981b). Social resources theory focuses on the resources embedded within the network, not necessarily the strength of tie nor the bridging properties between groups that lead to an individual's upward mobility (Lin, Ensel, & Vaughn, 1981a). Basically, an individual is more likely to utilize a contact within their network (regardless of tie strength) who can provide the resource necessary for them to meet their objectives.

Social networks allow an individual the opportunity to access greater information through social bridges and ties to other individuals. Thus, a social network is defined as a pattern of social ties or relationships that links one individual to a defined group or network of other individuals (Siebert, Kramer, & Linden, 2001). Both the information and the resources attained within the social network have the potential to increase individual performance, empowerment, and motivation (Hackman & Oldham, 1980; Spreitzer, 1996). Social networks are important factors that affect social capital in that they are the basis by which the level of social capital is determined (Seibert, Kraimer, & Liden, 2001). Lin (1999) suggested that individuals benefit from social networks by receiving improved information flow, strengthened decision-making, improved use of social resources, and reinforcement of identity and recognition. Therefore, entrepreneurs who have opportunities to develop social networks and can access the resources inherent to them may feel that their contacts are responsive to their needs. As a result, they have greater resilience and are more motivated to stay in business.

The social capital research helps to explain a networked environment in which individuals are successful at achieving a desired objective. More importantly, if the network structure in which an individual operates were to alter as a result of a planned effort to change, what impact would that have on their ability to achieve their goals and objectives? Although the more recent structural hole and social resources theories attempt to replace the weak tie theory, all of them represent theoretical relevance to dealing with individuals maximizing their potential for success.

A Model of Social Capital Problem Solving (MSCPS)

With theoretical underpinnings of problem solving and social capital identified, a model was developed to explain this phenomenon in the context of entrepreneurial activity. Research propositions were identified and labeled on the model to guide future inquiry in effort to empirically test the *Model of Social Capital Problem Solving* (See Figure 1).

The first step in the MSCPS is to ascertain a goal, which may develop from a felt need or perceived difficulty (Dewey, 1910; Lewin, 1951). For example, the entrepreneur may perceive a need to improve worker efficiency. If the entrepreneur decides to act on this need, the individual

will begin to ascertain a SMART goal and will initiate the problem solving process to attain this goal. In this case, an owner of a small building company may wish to reduce the amount of time workers spend installing a window by 30%. However it is uncertain if a SMART goal is ascertained before obstacles are identified, or if the identification of obstacles is part of the goal formation process (Research Proposition #1).

Once the goal is established and obstacles to attain the goal are identified, the entrepreneur may make a decision to attain the goal by working individually if the problem is

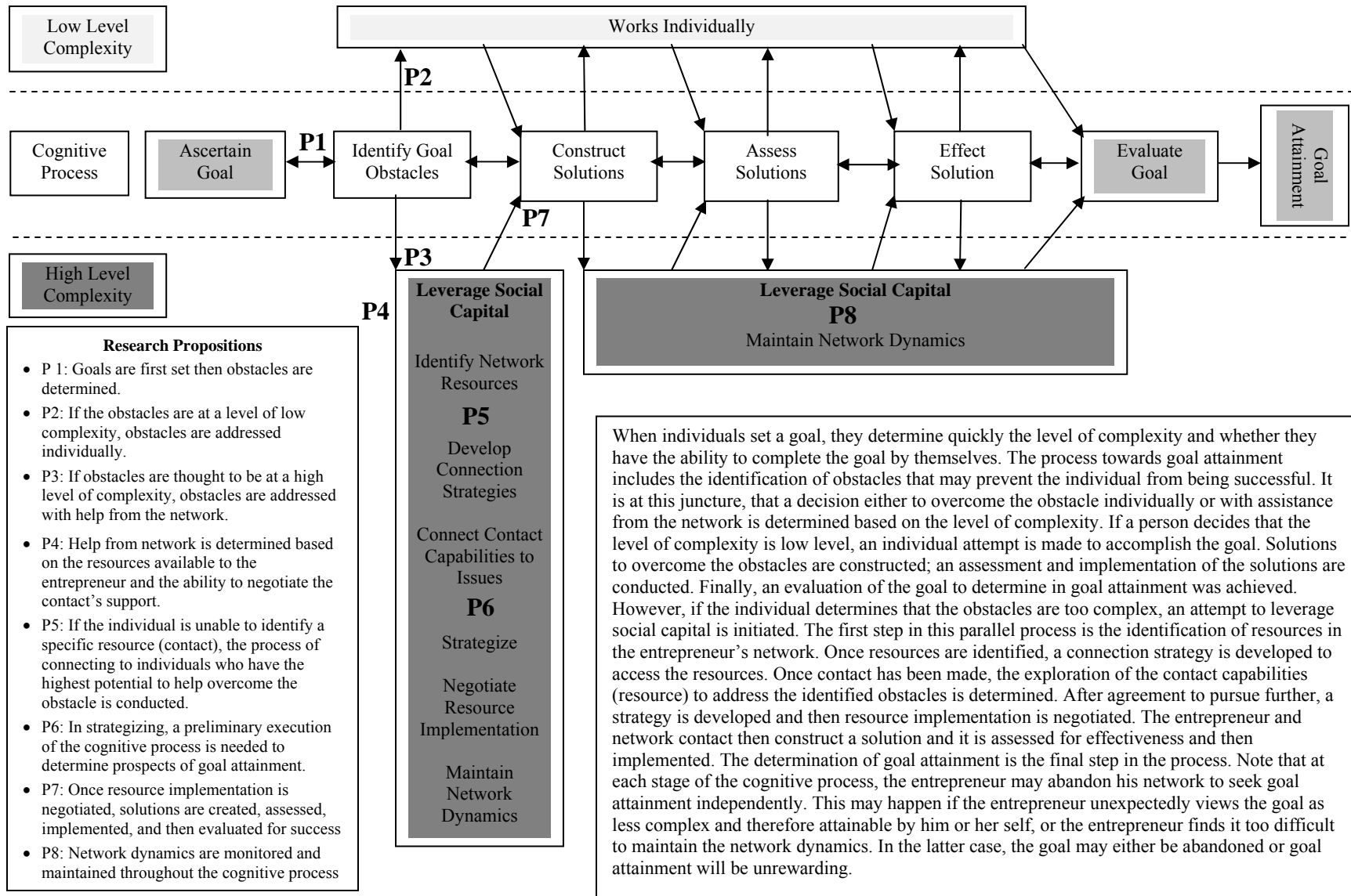


Figure 1. Model of Social Capital Problem Solving.

perceived as simple (Research Proposition #2). If the entrepreneur believes that the goal is simple enough, the individual will identify obstacles facing goal attainment, construct several solutions, assess for the most appropriate solution, and work to effect the chosen solution. Note that this process may happen in a few seconds if the entrepreneur believes the problem is relatively simple to solve; mostly because the individual has high levels of experience, knowledge, and skill in this area (Frederkison, 1984; Funke & Frensch, 1995; Kirton, 2003). That is, the entrepreneur may quickly know that workers are inefficient in installing windows because they are using cheaper tools that commonly break. To solve this problem, the entrepreneur begins providing better tools for the workers.

The entrepreneur may decide to leverage social capital because the ascertained goal is too complex to obtain independently or may require skills and knowledge outside the individual's capabilities (Research Proposition #3). This decision may come at the expense of the entrepreneur's self-esteem (Chung, 2005) as he may become aware that he is not as competent as previously thought, and possibly be embarrassed by asking a peer or person of higher competence for help. In this case, the entrepreneur may have evaluated the goal attainment and found that indeed providing tools for his workers did improve installation time by 30%; however, the solution was costly and many times tools were lost or stolen. Realizing the solution was not the most appropriate in achieving the goal, the entrepreneur understands that the problem faced is much more complex than originally perceived. Note that the decision to leverage social capital can be reversed at any time during the problem-solving process. For example, a contact may provide the entrepreneur a proven solution that can solve his problem and fulfill goal attainment; thus, the entrepreneur may affect the solution and evaluate for goal attainment working independently.

Because social resources are embedded within networks (Lin, Ensel, & Vaughn, 1981a), it is important for an entrepreneur to be able to 1) identify the resource, 2) access the resource and 3) utilize the resource to accomplish the goal or objective (Research Proposition #4). The entrepreneur wishing to improve worker-installation time on windows by 30% will assess his network to identify a contact or group of contacts that may have the experience, knowledge, or skill (Frederkison, 1984; Funke & Frensch, 1995; Kirton, 2003) needed to attain the goal. These individuals may include an employee (strong contact) or a peer entrepreneur (weak contact) that has overcome the obstacles of the same goal. Once the individual has identified the contact, the strength of tie (Grannovetter, 1972) is assessed to develop a connection strategy. The stronger the tie, the easier it is to connect with the identified individual.

If the entrepreneur is unable to identify an individual that can help attain his goal, a search is conducted to seek resources with the highest probability of overcoming the obstacle (Research Proposition #5). This is accomplished by understanding the issue affecting the goal and the ability to identify contacts who have the highest potential of solving the problem (Lin, et al., 1981a). In this case, the entrepreneur may discover that a contact had a similar issue of worker inefficiency and contacted a consulting firm. The entrepreneur realizes this may be the best option and begins a search of reputable consultants that assist entrepreneurs on these matters.

After contact, a review of the individual's capabilities is conducted to determine if the problem to be solved is possible, which includes a preliminary execution of the problem-solving process (Dewey, 1910; Research Proposition #6). After strategizing with the individual, a determination is made as whether to proceed or make a connection with someone else. If the decision is to proceed, then efforts are taken to develop a plan of action. The entrepreneur

wishing to improve worker efficiency will discuss obstacles and issues, potential solutions, and how to monitor progress of improving worker efficiency. The negotiation process between the entrepreneur and the resource contact begins if the entrepreneur believes the contact will serve as the most suitable in constructing solutions that overcome the identified obstacles. Once the contact is selected, the entrepreneur works with the contact to identify specific resources and the negotiation process for preparing implementation is conducted.

Once resources are negotiated for implementation, the contact assists the entrepreneur (Kirton, 2003) in the problem-solving process (Nickerson, 1999) of constructing solutions, assessing appropriate solutions, and effecting the chosen solution to reach goal attainment (Research Proposition #7). Note that during the solution-construction stage, the entrepreneur may determine that the solutions are inappropriate in attaining the goal and will regress in the process to identifying other goal obstacles by leveraging social capital with other resource contacts.

During the problem-solving process, it becomes the entrepreneur's responsibility to monitor and maintain network dynamics throughout the problem solving process if they are to reach a solution (Research Proposition #8). Individual characteristics, such as dissimilar problem-solving style, may inhibit progress of goal attainment by creating a Problem B (Kirton, 2003); a distraction to goal attainment. If complex problems require the help of contacts with different problem solving styles than the entrepreneur, and these differences are psychologically taxing for the partners, energy must be spent on avoiding Problem B so that social capital is efficiently spent on solving Problem A (Kirton). For example, the innovative entrepreneur having negotiated a contact's resources may have difficulties communicating, working with, and trusting a more adaptive contact, regardless of the strength of their current relationship. If these difficulties distract from Problem A (goal attainment), then too much effort focused on Problem B will result in a degree of loss in social capital; ranging from loss of efficiency in solving Problem A or a total loss of the resource due to discouragements. Also, note that if strong ties are associated with like-thinking individuals and weak ties are associated with different thinking styles (Granovetter, 1973), there may be reason to believe that an entrepreneur's weak ties often have a dissimilar problem-solving style. Being aware of individual characteristics, such as problem-solving style, during the problem-solving process may help the entrepreneur maintain network dynamics while working for goal attainment. That is, knowing that difficulties in problem solving are attributed to problem-solving style, not level or competence. In this case, the entrepreneur may determine that even though there are difficulties in problem solving, the resource contact may be instrumental in solving a complex problem because of their different problem-solving approach. Therefore, the entrepreneur may decide to work harder in avoiding Problem B for the sake of Problem A.

Finally, it should be noted that the entrepreneur may decide to revert back to attaining the goal without the help of social capital at any point in the problem-solving process. This may happen if the solution suddenly seems simple or the entrepreneur cannot maintain the network dynamics by keeping them focused on the problem at hand. If the problem is too complex and network dynamics cannot be maintained, it is likely that the goal will not be attained.

Conclusions

Salient theories of problem solving and social capital were examined within the context of entrepreneurial activities. The *Model of Social Capital Problem Solving* was developed with respect to these theories for the purpose of determining the required steps for entrepreneurs to

ascertain and attain goals. The problem-solving process (Nickerson, 1999) of the entrepreneur provides the foundation for goal attainment. If the identified obstacles are perceived as simple to solve, the entrepreneur may work independently. However, a goal with a high degree of complexity may require individuals to leverage their social capital. Once resources have been negotiated with a contact, the entrepreneur must maintain the dynamics of the network so that work is efficiently spent on goal attainment and not on distractions due to problem-solving style, despite deficiencies in communication, work, and trust (Kirton, 2003). Further, Kirton's Adaption-Innovation theory provides insight to the paradox of needing dissimilar problem-solving styles in solving complex problems, but resource contacts with dissimilar problem-solving styles may fail in goal attainment if not motivated by the entrepreneur (Kirton).

Recommendations and Implications

This study provided a conceptual understanding to how problem-solving theories and social capital theories may be used together in explaining the phenomenon of how entrepreneurs manage diversity of thought within the process of solving problems to accomplish their objectives. However, much more work is required to develop the model and it is suggested that researchers leverage the propositions to test the validity of the MSCPS model. It is recommended that extension agents examine current practices in helping entrepreneurs leverage their social capital in order to accomplish their business goals and how those practices could be improved using the *MSCPS* as an explanation of how entrepreneurs are attempting to reach their objectives. Furthermore, it is the hope of the authors that researchers will empirically test the research proposition in this model to create better insight as to how entrepreneurs make these decisions.

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