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OPPORTUNITY CREATION, UNDERLYING CONDITIONS AND ECONOMIC EXCHANGE

J. Robert Mitchell, Ronald K. Mitchell,
Benjamin T. Mitchell and Sharon Alvarez

ABSTRACT

In this study we focus on how conditions of uncertainty shape the entrepreneurial action that underlies opportunity creation. We utilize the basic structure of economic exchange in the context of opportunity creation theory to further investigate the conditions under which an entrepreneur might be expected to act to bring an opportunity into existence. Specifically, we suggest that uncertainty, that is manifest as relational uncertainty and resource uncertainty, shapes the entrepreneurial actions that underlie the creation of opportunities. In a laboratory experiment we test this hypothesis by observing 56 three-person groups engaged in an opportunity creation-focused exchange task. The results of the experiment support the hypothesis that variability in the conditions of uncertainty (relational uncertainty and resource uncertainty) affects the entrepreneurial action that results in opportunity creation. These results lead us then to propose that there exists a theoretically specifiable set of key entrepreneurial actions (one that is others-focused and another that

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is works-focused). From this analysis we suggest potential directions for future research in the areas of entrepreneurial action and opportunity creation.

Keywords: Entrepreneurial action; uncertainty; opportunity creation; economic exchange

INTRODUCTION

Opportunity creation theory (Alvarez & Barney, 2007) inhabits a conceptual meeting place where theories of entrepreneurial action (Klein, 2008; McMullen & Shepherd, 2006; Mitchell & Shepherd, 2010) and entrepreneurial opportunity (Dean & McMullen, 2002; Dimov, 2011; Shane & Venkataraman, 2000) intersect as enacted economic exchange. Theories of entrepreneurial action largely focus on the teleological nature of entrepreneurship by centering on what entrepreneurs do (Baker, Miner, & Eesley, 2003; McMullen & Shepherd, 2006), while general theories of the opportunity focus on the ontological origins of opportunities themselves by centering on when and how opportunities come into existence (Alvarez, Barney, & Young, 2010; Short, Ketchen, Shook, & Ireland, 2010; Vaghely & Julien, 2010; Venkataraman, 1997). In opportunity creation theory, entrepreneurs “act, and observe how consumers and markets respond to their actions” (Alvarez & Barney, 2007, p. 15). The rationale underlying this creation-based expectation of action is that “opportunities cannot be understood until they exist and they only exist after they are enacted in an iterative process of action and reaction” (Alvarez & Barney, 2007, p. 15). Teleology thus meets ontology in opportunity creation through the process of enactment: iterative entrepreneurial action that results in an economic exchange – evidence that an opportunity has come into existence.

While opportunity creation theory offers a robust theoretical perspective for explaining entrepreneurial action, it is nonetheless only beginning to specify an underlying rationale for when we might expect such action to occur: when an entrepreneur might be expected to bring an opportunity into existence (cf. Alvarez & Barney, 2005, 2007; Mitchell, Mitchell, & Smith, 2008). This specification is important, because at the system (economy) level, the “central issue is whether entrepreneurial action occurs [at all]” (McMullen & Shepherd, 2006, p. 132) and if so, with what consequences (Venkataraman, 1997). As McMullen and Shepherd (2006) point out, there

is a rich legacy of work in entrepreneurship addressing system-level questions (see e.g., Kirzner, 1973, 1999; Schumpeter, 1934). Indeed, explanations concerning the impact of actions by individual entrepreneurs are more complete when the system-level conditions that give rise to these actions are also taken into account (cf. Alvarez & Barney, 2005; Baron, 1998; Gnyawali & Fogel, 1994; Hmieleski & Baron, 2008; McMullen & Shepherd, 2006; Ucbasaran, Westhead, & Wright, 2001; Van De Ven, 1993). Likewise, a more-complete understanding of opportunity creation is possible, in particular, when we consider the system-level conditions that lead to it. Of key importance to our study, opportunity creation at the system level is thought to be shaped primarily by conditions of uncertainty, in contrast to opportunity discovery, which is thought to be shaped principally by conditions of risk (Alvarez & Barney, 2007; Hmieleski & Baron, 2008).

Accordingly, in this study we seek to better understand the nature of the uncertain conditions that shape opportunity-creation-focused action (Alvarez & Barney, 2005, 2007). In doing so, we establish a foundation for further research by making at least five theoretical and operational contributions (cf. Popper, 1979, pp. 47–48). First, we provide preliminary experimental evidence that can help to resolve some of the present theoretical difficulties in entrepreneurship research, specifically by demonstrating that all opportunities cannot be assumed to exist *ex ante*. Second, we provide an early empirical step that can assist with existing methodological difficulties in entrepreneurship research by offering enacted economic exchange as an indicator of opportunity – an inherently difficult construct to measure. Third, the results of our study enable an explicit theoretical and empirical linkage to be made among three previously un- (or under-) connected phenomena: entrepreneurial action, specific conditions of uncertainty, and opportunity creation. Fourth, we improve testability in the domains of entrepreneurial action and opportunity creation by helping to define created opportunity in terms of specific entrepreneurial action. And fifth, based upon our results, we are enabled to further theorize concerning two specific types of entrepreneurial action (one that is others-focused, and another that is works-focused) that are expected to impact (respectively) the conditions of uncertainty identified in the experiment (relational uncertainty and resource uncertainty). We acknowledge, however, that the reader may also find other uses for the results of our study, which we have not yet anticipated, but which may provide further theoretical or operational utility.

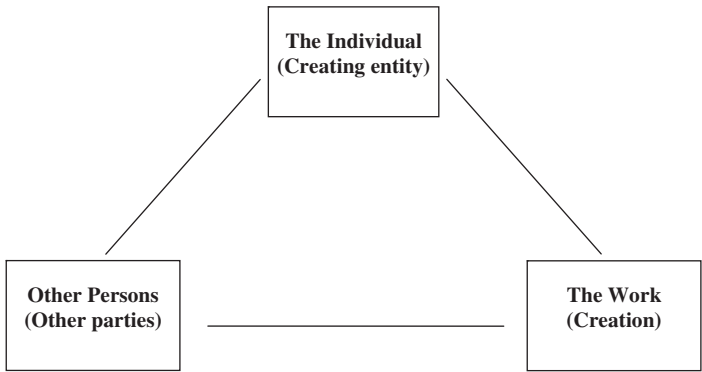
Consistent with our emphasis on underlying conditions for opportunity-creation-focused action, our study is set in the context of enacted economic

exchange (cf. Alvarez & Barney, 2005; Larson, 1992; Vissa, 2011), the basic unit of entrepreneurial activity. To this end, we first examine the literature to ascertain/establish the underlying structure of economic exchange as a foundation for a creation theory of enacted opportunity (cf. Mitchell et al., 2008; Mitchell, Morse, & Sharma, 2003). Second, from the understanding that emerges in the analysis – that exchange structure is primarily dependent upon information – we derive two systemic conditions of uncertainty: relational uncertainty and resource uncertainty. These two conditions, we argue, shape whether or not creation-focused entrepreneurial action – in the form of an economic exchange – occurs (cf. Alvarez & Barney, 2005, 2007; Mitchell et al., 2008). Third, we therefore test the extent to which these two systemic conditions of uncertainty (as derived from the structure of economic exchange) influence the creation of opportunities. Fourth, we discuss what implications the results of this study have for the development of opportunity creation theory and for the further study of entrepreneurial action, and we engage in preliminary theorizing relating to this end.

THE STRUCTURE OF ECONOMIC EXCHANGE

Carter (1989, p. 156) asserts that economic theories of exchange can be developed using prototypical cases: “buyers and sellers ... paired with respect to (1) the kinds of goods they wish to trade; (2) the volumes of those goods; and (3) the times at which they are prepared to offer and receive them.” Further, Larson (1992) suggests a fundamental structure of exchange: the transfer of a product or service from a buyer to a seller. Helpfully, Commons (1931, p. 652) has argued that the smallest economic unit of analysis is a “*unit of activity*” (emphasis in original) – an economic exchange. Using Gardner’s (1993, p. 9) analysis of the human creative process as a starting point we are then able to visualize (see Fig. 1) the underlying structure of economic exchange as follows: the individual creator (a seller), other persons (a buyer) and the product or service (the work).

Note in the figure that each of the three components specified – the individual (creating entity), other persons (the other party to the exchange), and the work (the creation) – adds a necessary element and, as we later argue, will be implicated in shaping the conditions for opportunity creation. We emphasize from the quotation by Carter (1989, p. 156) in the preceding paragraph, that each element must ultimately be present for an exchange to occur. Any two alone are insufficient: there can be no exchange when an individual lacks a work to sell. Nor can an exchange occur where an



Based on Csikszentmihalyi (1988); Gardner (1993: 9)

Fig. 1. Elements of a Basic Economic Exchange.

individual creates a work but has no other persons to whom to sell it. And, the idea of a work being for sale to other persons without an individual creator is undefined. Arguably, then, although an exchange may possibly occur using more elements than the three specified, it may not exist with fewer. For this reason, we argue that in opportunity creation theory, the smallest unit of socioeconomic activity is an exchange, and that this exchange is defined to be *an individual, creating a work that is purchased by other persons*.¹ At a basic level, opportunity creation is the creation of economic exchange.

CONDITIONS FOR OPPORTUNITY CREATION

As previously introduced, our task in this chapter is to more precisely specify the conditions that shape creation-focused entrepreneurial action (cf. Alvarez & Barney, 2005, 2007; Mitchell et al., 2008), where the foregoing described structure of economic exchange is utilized to develop a more-complete explanation. We theorize that the likely conditions influencing any exchange would be introduced by one or all of the elements of that exchange (cf. Csikszentmihalyi, 1988; Gardner, 1993; Mitchell et al., 2003). Given the fundamental importance of exchange to economic activity (Commons, 1931), we now spell out the nature of these element-specific conditions as we intend to use them, expressly in terms of how these conditions lead to

variability in the creation of opportunities; and for this task we turn to behavioral and new-institutional economics for a theoretical foundation.

The two decades encompassing the mid-1960s through the mid-1980s saw the development of economic theories that attempted to relax the neoclassical economic assumption of perfect information and instantaneous exchange. These developments involved a shift in focus to the *behavioral* assumptions that underlie economic activity in the face of uncertainty and imperfect competition (Cyert & March, 1963; Nelson & Winter, 1973; Simon, 1979; Williamson, 1975, 1985) – assumptions that relate exchanges to *sellers, buyers, and the product/service* for sale in the exchange. As Knight describes, “the fundamental uncertainties of economic life are the errors in predicting the future and in making present adjustments to fit future conditions” (1921). These errors are informational errors. In an exchange, the potential seller (i.e., the opportunity creator) introduces uncertainty that stems from imperfect information/bounded rationality: limitations on the information available to an individual and from limitations in the ability to process the information that *is* available (cf. Dosi & Egidi, 1991; Simon, 1979; Todd & Gigerenzer, 2003). But to effectively apply a focus on an individual-based type of uncertainty, we must still define this more general, bounded rationality-based uncertainty (resident in the environment) in terms of the uncertainty stemming from the two other elements resident in economic exchange: the others (buyers) and the work (product/service) (see e.g., Clark, 1985).

We therefore suggest that the need for buyers in an exchange (i.e., the others) introduces uncertainty that stems from variability in levels of trust development required for a relationship to exist between the parties where opportunism might exist (cf. Aldrich & Fiol, 1994; Barney, 1990; Barney & Hansen, 1994; Nagin, Rebitzer, Sanders, & Taylor, 2002; Yang, Lin, & Lin, 2010), leading a buyer not to trust a seller or a seller not to trust a buyer. We label this others-based type of uncertainty *relational uncertainty* (cf. Knobloch & Solomon, 1999; Steensma, Marino, Weaver, & Dickson, 2000; Yang et al., 2010).

Likewise, we suggest that the creation of a product/service for exchange (i.e., the work) by its nature is constrained by uncertainty. This is due to difficulties in knowing the extent to which a given product/service combination of heterogeneous resources will produce superior value to a customer (Alvarez & Busenitz, 2001). This is also due to difficulties in knowing the resources required for the creation of a given product/service (guns not butter, food not fuel, buns not beer). Further, we also expect uncertainty to exist in terms of the value and availability of the resources

involved in opportunity creation (cf. Alvarez & Busenitz, 2001; Carter, 1989; Conner, 1991). That is, uncertainty about the availability of essential resources shapes the kinds of goods that can be created and their volume in the exchange, as well as the potential value of these goods to others and the availability of the parties to offer and receive these goods (cf. Carter, 1989). We label this works-based type of uncertainty *resource uncertainty* (Bernardo & Chowdhry, 2002; Freel, 2005; Song & Montoya-Weiss, 2001). The implications of this logic on the exchange model are depicted in Fig. 2.

This model depicted in Fig. 2 illustrates the centrality of uncertainty as a condition that shapes opportunity creation, consistent with prior research in entrepreneurship (Alvarez & Barney, 2007; Knight, 1921; Rumelt, 1987; Venkataraman, 1997). Broadly defined, uncertainty involves difficulty in accurate prediction regarding the “state” of the informational environment, the “effect” that any environmental change might have on an individual or firm, and the “responses” (actions) and consequences that are possible (Knight, 1921; Milliken, 1987, pp. 136–138). While state, effect, and response uncertainty are each relevant to entrepreneurial action (McMullen & Shepherd, 2006), uncertainty in opportunity creation – in the form of relational uncertainty and resource uncertainty – seems to most closely reflect response uncertainty. Indeed, in opportunity creation this uncertainty might even be thought of as a kind of “action-outcome” uncertainty. As Alvarez and Barney describe, uncertainty exists for entrepreneurs “if, at the time a

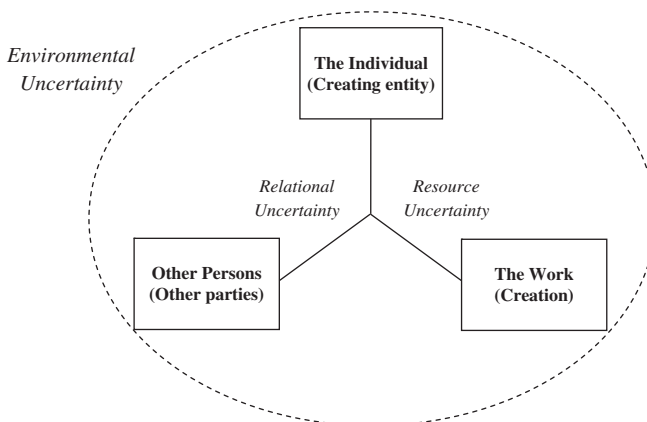


Fig. 2. Economic Exchange and Conditions for Opportunity Creation.

decision is being made, decision makers cannot collect the information needed to anticipate either the possible outcomes associated with a decision nor the probability of those outcomes” (2007, p. 14). In this way, action in opportunity creation is forward-looking in that opportunities as outcomes are “created, endogenously, by the actions, reactions, and enactment of entrepreneurs” (2007, p. 15).

When we apply the foregoing response-uncertainty logic to the question of when an opportunity might be expected to be created, we suggest that where an exchange requires action in the face of uncertainty due to imperfect information/bounded rationality (cf. Dosi & Egidi, 1991; Simon, 1979; Todd & Gigerenzer, 2003) that appears within an exchange as: (1) relational uncertainty due to the possibility of moral hazards and distrust (cf. Aldrich & Fiol, 1994; Barney, 1990; Barney & Hansen, 1994; Nagin et al., 2002) and (2) resource uncertainty due to constraints in the availability and value of resources (cf. Alvarez & Busenitz, 2001; Carter, 1989; Conner, 1991), there will likely be fewer opportunities (in the form of exchanges) created. The logic underlying this expectation is that individuals who are less likely to act to address relational uncertainty and/or resource uncertainty (as essential types of uncertainty) will as a result be less likely to engage in the successful creation of opportunities.

We suggest three reasons as to why this expectation of fewer opportunities might be justified (Leddo & Abelson, 1986; Mitchell, Smith, Seawright, & Morse, 2000; Smith, Mitchell, & Mitchell, 2009). First, entrepreneurs may be less likely to successfully create opportunities because they perceive themselves as lacking the necessary arrangements for action (e.g., “contacts, relationships, resources, and assets,” Mitchell et al., 2000, p. 977) as a result of relational uncertainty and/or resource uncertainty, leading them to see entrepreneurial action as potentially good for others, but not for themselves (cf. McMullen & Shepherd, 2006). Second, individuals may not create opportunities because of an unwillingness to act in the face of relational uncertainty, and/or resource uncertainty, leading them to have no commitment or receptivity to the idea of entrepreneurial action (Mitchell et al., 2000, p. 978). And third, potential opportunity creators may be less successful in creating opportunities because they lack the ability to engage in the action, reaction and enactment (Mitchell et al., 2000, p. 978) that will lead them to create a work that is purchased by other persons, given relational uncertainty, and/or resource uncertainty. Accordingly, we expect:

Hypothesis 1. In conditions with high-relational uncertainty and resource uncertainty, opportunities are less likely to be created.

Through testing the foregoing hypothesis – which pits features in our “actual” socioeconomic environment (in which relational uncertainty and/or resource uncertainty are manipulated to be high) against a hypothetical socioeconomic “alternative reality” (in which such uncertainties are manipulated to be low) – we are then able to contribute to the foundations of theory that seeks to explain: (1) the teleological: what entrepreneurial action leads to, and (2) the ontological: the existence of an opportunity due to opportunity creation (cf. Alvarez & Barney, 2005, 2007; Mitchell et al., 2008). We test this hypothesis in a nontrivial and low-equivocality controlled setting; as we now explain.

METHOD

To test Hypothesis 1, we used a controlled laboratory experiment wherein groups of three participants engaged in an opportunity-focused exchange task (cf. King-Casas et al., 2005). We manipulated uncertainty generally, and relational uncertainty and resource uncertainty specifically and then observed opportunity creation under both conditions. Opportunity creation was measured as the number of completed economic exchanges within a group: an opportunity creator creating a work that is purchased by others. Uncertainty was manipulated through variations in the rules of the task provided to the groups. In the following paragraphs, we describe the study participants, the task itself, the conditions, and the control variables that we included in the analysis.

Participants

One hundred and sixty-eight undergraduate business students (56 three-person groups) from a large US mid-western university participated in this study. Because economic exchange is a basic element of socioeconomic activity (Commons, 1931, 1932) and is as applicable to students as it is to entrepreneurs, managers, customers, or other similar socioeconomic actors, our sampling from a student population allowed us to capture the fundamental elements of exchange in a nontrivial and theoretically consistent context (opportunity creators creating a work that is purchased by others) that could be controlled. By this we mean that sampling from a student population allowed us to control for other sources of variance in opportunity creation through the use of an on-campus laboratory, thereby

increasing the internal validity of our results (Campbell & Stanley, 1963). Accordingly, we considered a student-based subject pool to be appropriate for the research design; and due to the ubiquitous role of exchange in socioeconomic activity, we concluded that any role-specific characteristics of student subjects (see, e.g., Sears, 1986) would not preclude their participation in investigations related to the opportunity creation.

Participants were recruited in a multi-section undergraduate business course, were offered extra credit, and told that they would be paid up to \$10 based on their performance in the study. The median age of the participants was 21 years, and 63 percent of the participants were male. Each group of three was randomly assigned to either the high or the low uncertainty conditions. Following the experiment, participants were also asked not to discuss the experiment with others, so as to preserve an unbiased participant pool.

Experimental Task

To investigate opportunity creation, we sought an experimental task that: (1) captures the action that animates the essential elements of exchange in its simplest form: opportunity creators who create a work that can be purchased by others, (2) could do so in the context of opportunities to create *future* goods and services (Shane & Venkataraman, 2000; Venkataraman, 1997), and (3) would not presume that exchange *must* occur. A slightly modified version of *The Big Idea*, a game of inventing and investing (Ernest, 2006), met these criteria. The game involves combining *adjective* and *noun* cards (see the [appendix](#) for example) in unique ways that result in *potential* future goods and services. To mitigate social desirability and hypothesis guessing (cf. Crowne & Marlowe, 1964), the experiment was divided into two tasks: an initial opportunity creation/investment task (the actual purpose) and a subsequent investment satisfaction and evaluation task (the ostensible purpose as described to participants). Throughout the experiment, we repeatedly emphasized the central role of the second task, although we informed them (generally) that payment (of up to \$10) would be based on their creating, buying/investing, and selling.

In the experimental task, participants attempted to create opportunities (i.e., future goods and services for others) using the adjective and noun cards provided to them. For instance, a participant might combine the cards *flying*, *monkey*, and *robot* to result in a flying robot monkey (see the [appendix](#)). Either, but not both, of the other two participants could then

buy/invest in² this opportunity using the currency provided. This process replicated real-world exchange in four ways: (1) there were others available with whom an opportunity creator *could* engage in exchange if they so chose, (2) a participant *could* act as both an opportunity creator and “the other” in exchange (although not simultaneously), (3) scarcity exists in created works (i.e., the two “others” could not simultaneously purchase, nor could offer, the same work), and (4) exchange was possible, but not required (especially considering the scarcity in created works). To provide a means by which others could buy/invest in the created opportunities, participants were given colored tokens as currency, thereby enabling (but not requiring) exchange.

Based on pretesting conducted to ascertain the practical parameters of the experiment, each participant received five adjective cards and five noun cards as well as 60 colored tokens. The number of tokens was set to ensure that scarcity was preserved, while at the same time not artificially limiting the number of potential opportunities that could be created. Participants were not told how many tokens they received but were instructed that they would have 20 minutes to carry out the opportunity creation/investment task. However, the task was stopped after 15 minutes to prevent participants from simply disposing of tokens in the final minutes of the task, thereby also preserving scarcity. The determination of actual time provided was also based on the pretests.

Experimental Conditions

Participants received verbal, written (see the [appendix](#)), and video instructions regarding the rules of the task. As we have noted, the experiment consisted of two conditions: high uncertainty and low uncertainty. The high uncertainty condition represents the actual socioeconomic environment of opportunity creation, in which relational uncertainty and resource uncertainty are present at a nontrivial level (Clark, 1985). The low uncertainty condition represents a hypothetical socioeconomic “alternative reality” of opportunity creation in which uncertainty in the form of relational uncertainty and resource uncertainty are deliberately reduced. These manipulations are depicted in [Table 1](#) and are described in more detail in the following paragraphs. Prior to providing this description, we again note (for emphasis) that (although not at the same time) participants could be both an *opportunity creator* (selling a work) and an *other* (buying a work) in the game.

Table 1. Experimental Manipulations.

	High Condition (“Actual” Socioeconomic Environment of Opportunity Creation)	Low Condition (“Alternative Reality” Socioeconomic Environment of Opportunity Creation)
Uncertainty (generally) (Reflects heterogeneity in the level of information processing required and in the level of information available)	<ul style="list-style-type: none"> Participant (as seller) names price and communication of desired price by other participant (as buyer) prohibited 	<ul style="list-style-type: none"> Participants (as sellers and buyers) can jointly set price Assumption is that someone will invest
Relational uncertainty (specifically) (Reflects heterogeneity in the degree to which trust needs to be developed in light of the possibility of moral hazards and distrust)	<ul style="list-style-type: none"> Individual financial incentives (competing against other two participants) Other participants in the group referred to as <i>individuals</i> Possibility of cheating without consequence acknowledged 	<ul style="list-style-type: none"> Team financial incentives (competing against other <i>unseen</i> groups) Other participants in the group referred to as <i>team members</i> Possibility of cheating not addressed
Resource uncertainty (specifically) (Reflects heterogeneity in resources, given limits on their possession and redeployability)	<ul style="list-style-type: none"> Initial investment required for each attempt to sell an opportunity Noun and adjective cards limited (five of each) 	<ul style="list-style-type: none"> No investment required for each attempt to sell an opportunity Noun and adjective cards limited (five of each), but participants given additional cards (seven of each) that can be “swapped” for existing cards

Uncertainty

Opportunity creators face uncertainty concerning information availability and consequently limitations on information processing (Simon, 1981; Todd & Gigerenzer, 2003). To manipulate such uncertainty, in the form of both relational uncertainty and resource uncertainty, we thus varied the availability of information across conditions about others and/or works. In the high condition (i.e., the “actual” socioeconomic environment of opportunity creation), participants (as buyers) were prohibited from communicating the price that they would pay other participants (as sellers).

Instead, participants (as sellers) were required to set the price for their opportunity, and if other participants declined to buy/invest, then the sellers either had to establish a new price or abandon their attempts to create that opportunity. The rules in this condition were intended to decrease information availability (high uncertainty: necessary information must be acquired). In the low condition (i.e., the hypothetical “alternative reality” socioeconomic environment of opportunity creation), participants (as sellers) could set prices with other participants. Participants in this condition were also told that someone would buy anything they created and that, likewise, they should buy anything that someone else created (again recognizing that the scarcity of created works in fact limited the predisposition of buyers to buy). In other words, in this condition information regarding the identity of “others” and the “works” was known to the opportunity creator *ex ante*. The rules in this condition were intended to reduce uncertainty by increasing information availability and decreasing the effect of bounded rationality (low uncertainty: necessary information is possessed and understood *ex ante*).

Relational Uncertainty

For an opportunity to be created, opportunity creators must engage in exchange relationships with others (cf. Vissa, 2011). This requires a degree of trust development, but in light of the *possibility* of opportunism-based moral hazards and distrust (Barney, 1990; Nagin et al., 2002). To manipulate relational uncertainty, we thus varied the self-interested nature of the incentives. In the high condition (i.e., the “actual” environment), participants were told that they were competing against one another and that one of them would receive \$10, one just \$5, and the last person only \$3 (see e.g., Steensma et al., 2000). Moreover, throughout the task, the other participants in the group of three were referred to as *individuals*. Participants in the high condition were reminded that there was nothing to *prevent* them from cheating the other participants in the task. The rules in this condition were intended to allow for the possibility of distrust, moral hazard, and self-interest seeking (high-relational uncertainty: information about trust is lacking). In the low condition (i.e., the hypothetical “alternative reality”), participants were told that they were, as a team, competing against other teams: some teams would receive \$30 (or \$10 each), some teams would receive just \$15 (or \$5 each), and some teams would only receive \$9 (or \$3 each) (see e.g., Steensma et al., 2000). Moreover, throughout the task, the other participants in the group of three were referred to as *team members*. Lastly, the possibility of cheating others was not discussed with participants

in the low condition. The rules in this condition were intended to increase trust inherent in the relationships among parties (low relational uncertainty: information about trust exists *ex ante*).

Resource Uncertainty

As part of opportunity creation, opportunity creators must also create a work that is purchased by others. This requires the work created to be *differentiated* from other available works. To create a work, an opportunity creator must make non-redeployable investments of available resources (e.g., time, money, effort, etc.) (cf. Hitt, Hoskisson, Johnson, & Moesel, 1996; Teece, 1996; Venkataraman, 1997), the value of which are unknown *ex ante*. To manipulate resource uncertainty, we thus varied: (1) the level of nontrivial commitment relative to a lack of information about outcomes and (2) the information requirements relative to the availability/value of resources necessary to create opportunities. In the high condition (i.e., the “actual” environment), participants had to discard (commit) two tokens for *each* combination before they attempted to sell. In addition, in the high condition, participants were restricted to using only the 10 cards that they received (five adjective cards and five noun cards). The rules in this condition were intended to reflect the limited nature of the non-redeployable resources that are required for opportunity creation relative to information about outcomes (high resource uncertainty: the resources and knowledge required to create a work are scarce *ex ante*). In the low condition (i.e., the hypothetical “alternative reality”), there was no cost (commitment) to attempt to sell a product or service. Also, each participant in this condition was given a “draw pile” of 14 additional cards (seven adjective and seven noun cards) that could be used to replace their original cards. Nevertheless, while there were no restrictions on the number of replacements, participants could only use 10 cards at any given time. The rules in this condition were intended to reflect the availability and redeployability of resources that are required for opportunity creation relative to information possessed (low resource uncertainty: the resources required to create a work are available *ex ante* relative to information about outcomes).

Control Variables

While groups were randomly assigned to conditions, we nonetheless sought to control for other potential explanations for differences in opportunity

creation. Our expectation was that groups that were more motivated to participate in the research would also be more likely to engage in exchange. Thus, we controlled for differences in motivation between groups. This was measured in a post-task questionnaire that consisted of six questions measured on a seven-point Likert-type scale that captured participants' level of effort and motivation to participate in the research ($\alpha = 0.78$). Because our unit of analysis of interest, opportunity creation, was measured at the group level, we summed individual scores to result in a motivation measure for the group. We also asked participants to indicate whether or not they knew either of the other two participants in their group prior to the experiment. Although we conveyed the importance of not being acquainted with the other two participants when recruiting participants, we nonetheless controlled for this using a dichotomous measure of whether or not a group consisted of participants who were acquainted in any way. A continuous measure reflecting the degree to which group members were acquainted was also collected; however, it was less robust than the dichotomous measure and was thus not utilized in our analysis.

RESULTS

Analysis of covariance (ANCOVA) was used to analyze the data gathered to test the hypothesis because it can accommodate the use of covariates (in our case, control variables). To determine whether the experimental conditions (high/low uncertainty conditions) affected opportunity creation as intended, we included eight self-report questions in our post-task questionnaire through which we captured participants' perceptions of uncertainty, both as relational uncertainty and as resource uncertainty in the task (a manipulation check). These perceptions were measured on a seven-point Likert-type scale. For instance, participants were asked the extent to which (a) "It was difficult to come to the right price at which to sell my opportunities" and (b) "The way the investment amount was determined limited my ability to sell my opportunities." The eight items were summed for all group members to result in a variable (with a mean of 112.78 and a standard deviation of 12.99) that was then used in a one-way analysis of variance (ANOVA). The results of this manipulation check are shown in [Table 2](#) and indicate an effective manipulation.

[Table 3](#) shows the means, standard deviations, and intercorrelations of the variables included in the hypothesis testing. [Table 4](#) summarizes the ANCOVA results. Hypothesis 1 asserts that where relational uncertainty

Table 2. Results of One-Way Analysis of Variance (Manipulation Check)^a.

	Low Condition		High Condition		<i>F</i>
	<i>n</i> = 28		<i>n</i> = 25		
	<i>M</i>	S.D.	<i>M</i>	S.D.	
Perceptions of uncertainty (relational and resource uncertainty)	107.84	12.14	118.32	11.82	10.10*

* $p < .01$.

^aThe decreased *n* between conditions is a result of missing data in the high condition for the manipulation checks.

Table 3. Means, Standard Deviations, and Correlations^a.

Variables	Mean	S.D.	1	2	3
1. Opportunity creation (DV) ^b	24.59	7.85			
2. Group task motivation (control)	92.41	8.87	-0.19		
3. Knowledge of other group members (control) ^c	-0.14	0.48	-0.24	0.14	
4. Condition (high versus low) ^d	0.00	0.50	-0.61	-0.07	0.07

* $p < .001$.

^a $n = 56$.

^bRange: low condition = 18–44, high condition = 11–35.

^cContrast coded: -0.5 = no knowledge of other participants; 0.5 = knowledge of other participants.

^dContrast coded: -0.5 = low uncertainty (relational and resource uncertainty); 0.5 = high uncertainty (relational and resource uncertainty).

and resource uncertainty are high, opportunities are less likely to be created. As can be seen in Table 4, the group mean for opportunity creation in the high condition was significantly lower than the group mean for opportunity creation in the low condition ($F_{1,52} = 34.87$, $p < .001$). This finding provides support for Hypothesis 1, suggesting that relational uncertainty and resource uncertainty shape whether or not opportunity creation occurs. As we will discuss in the next section, this finding provides insight into a previously under-examined topic area in entrepreneurship research: how our understanding of variability in the conditions of economic exchange affects our understanding of the entrepreneurial actions implicated in opportunity creation.

Table 4. Results of Analysis of Covariance for Opportunity Creation^a.

Covariate	Economic Exchange		
	<i>F</i>	Group mean	η^2
Group task motivation (control)	3.96		0.07
Knowledge of other group members (control)	2.60		0.05
Hypothesis 1 ^b	34.87*		0.40
High condition		19.84 (1.13)	
Low condition		29.34 (1.13)	
$R^2 = .45$			

* $p < .001$.

^aWe estimated marginal group means with standard errors in parentheses.

^bFor the high condition, $n = 28$ groups; for the low condition, $n = 28$ groups.

DISCUSSION

Conditions matter. Since at least the time of Archimedes (287–212 BC), scholars have understood the effect of “conditions” on action-oriented “outcomes.” Archimedes of Syracuse claimed (allegorically) that with a long enough lever, and a strong enough fulcrum, he could “move the world.” And, like the variable conditions of length and strength that Archimedes claimed could lead to movement as an action-oriented outcome; in our study variation in the combined uncertainty conditions of relational uncertainty and resource uncertainty have been shown, in the two contrasting conditions in the experiment (high: the actual world of opportunity creation; and low: a hypothetical alternative reality of opportunity creation), to lead to significantly different levels of the entrepreneurial actions that underlie the creation of opportunities. Furthermore, by demonstrating the effect of conditions on outcomes in the case of opportunity creation, we have in this process also demonstrated that in the quest for better understanding opportunity, economic exchanges (as entrepreneur-initiated action that results in the creation of opportunities) cannot simply be assumed to exist as givens.

But action in the face of conditions also matters. In addition to our finding that there exists significant variability in opportunity creation between conditions, we observed that there exists considerable variability in opportunity creation *within* the high condition specifically (minimum = 11, maximum = 35, mean = 19.86, standard deviation = 6.00). In this section we therefore further examine the implications that the conditions for

opportunity creation (cf. Alvarez & Barney, 2005, 2007; Mitchell et al., 2008) have on the *kinds* of entrepreneurial action that is required for opportunity creation to occur more frequently. To accomplish this task, we consider what variability in the conditions for opportunity creation might mean for the actions that underlie the creation of economic exchange.

Implications of Variability in the Conditions for Opportunity Creation

In this study we have specified explicitly how variation in certain conditions within the economic environment influences opportunities created through entrepreneurial action. While we do not claim that the conditions that we selected to examine in our study are the only influencers of the opportunities created through entrepreneurial action, in this chapter we have provided a theoretical justification for why these conditions and not others might be expected to be fundamental. This approach is important, because it is crucial to a teleological explanation, that the sources of variation in the relationship be specified as inherent to the goals of the economic system within which they are expected to hold (in this case the exchange context). In short, if opportunities are assumed not to exist until the point of creation (i.e., that the actions of an entrepreneur brings them into existence, Alvarez & Barney, 2007), then an understanding of the conditions that necessitate such actions is central.

In contrast, a view of opportunity which suggests that opportunities exist in some objective way irrespective of which economic actor may be vigilant enough, persistent enough, or alert enough to discover them, also suggests that entrepreneurial action is necessary (albeit action of a different sort). We acknowledge that variations in the conditions for economic exchange that we have manipulated in our experiment might also affect the extent of entrepreneurial discovery; but we suggest that where opportunities are assumed to be objective phenomena, are exogenous, and exist whether an individual is alert to these opportunities or not (Shane, 2003), entrepreneurial action in this view consists of the exploitation of the opportunity, and is for the most part outside the scope of this study (Alvarez et al., 2010). And because from a discovery perspective the objects of exchange can be assumed to already exist within the economic environment with the focus being upon exploitation, such conditions would more likely be expected to evidence risk (Alvarez & Barney, 2007).

Therefore next, we focus on exploring and discussing the nature and expected influence of the various conditions of uncertainty specified in our

theory development: the question of the kinds of entrepreneurial action with respect to each of the theoretically derived conditions that is required for opportunity creation to occur: uncertainty in the form of relational uncertainty and resource uncertainty. Specifically, we seek to examine in more detail the implications for research and practice of the variability in opportunity creation *within* the high condition. This finding has consequences, we believe, for the *kinds* of entrepreneurial action implicated.

Kinds of Entrepreneurial Action Implicated

At this point in the discussion we expressly acknowledge that our attention in this discussion is now turning to “extensions” of the research: to explore how the results of this study can provide a logic that enables the further exploration of the antecedents of opportunity creation within the context of exchange. We reason that as the manipulation of uncertainty (in the form of relational uncertainty and resource uncertainty) shaped opportunity creation in our experiment, so heterogeneity of action in the face of these conditions should also affect variability of opportunity creation (Alvarez & Barney, 2007). We therefore explore theory, as applied within the context of economic exchange, to provide an underlying rationale for such heterogeneity of entrepreneurial action in opportunity creation.

Aristotle noted the centrality of exchange when he stated: “There would be no society if there were no exchange” (del Mar, 1968 [1896]). Since, as we have argued, exchange forms the basis for opportunity creation, the definition of an exchange offered earlier (*an individual, creating a work that is purchased by other persons*), is central to the development of implications for the kinds of entrepreneurial action suggested by our results. We therefore reiterate our belief that this definition is highly useful in specifying the irreducible components of exchange as illustrated in Figs. 1 and 2. As such, this definition seems likely to also be the basis for an analysis of the action-based (versus condition-based) sources of variability of opportunity creation in the face of uncertainty generally, and relational uncertainty and resource uncertainty specifically. We therefore infer with this logic, that there ought to exist a theoretically specifiable set of key entrepreneurial actions that correspond to this exchange structure.

Helpfully, our analysis of implications is informed by the processes described by Williamson (1985, p. 31): planning, promise, and competition,

which – it has been asserted – each correspond to an element of this definition (cf. Mitchell, 2003). Where this is the case, we might then justifiably assert that variations of these processes might logically be expected to influence the impact of uncertainty within the exchange context. According to this logical parallel, our expectation is that variations in the actions of an entrepreneur (that correspond to planning-type processes) will likely be manifest in two specific types of entrepreneurial action: *others-focused action* (akin to promise-type action, cf. Mitchell et al., 2003) and/or *works-focused action* (akin to competition-type action, cf. Mitchell et al., 2003); and furthermore that these variations, in turn will lead to variation in opportunity creation.

Generally speaking, we thus argue that entrepreneurial action (as a substitute for planning, where planning is difficult due to uncertainty, broadly construed) reflects activities that serve to generate new and useful information through iterative and emergent action processes. As noted previously in this chapter, in the opportunity creation literature, “... opportunities cannot be understood until they exist and they only exist after they are enacted in an iterative process of action and reaction” (Alvarez & Barney, 2007, p. 15). We argue that it is the action in this iterative process that is the creative engine that irresistibly erodes the barriers posed by information problems and thereby substitutes for planning. Some of these action-based processes, as described in the literature, might include effectuation (Read & Sarasvathy, 2005; Sarasvathy, 2001), bricolage (Baker et al., 2003; Baker & Nelson, 2005; Plowman et al., 2007), or possibly non-predictive control (Wiltbank, Read, Dew, & Sarasvathy, 2009). Each of these action processes, we argue, reduces the impact of uncertainty on the task of creating economic exchange and thus of creating opportunities.

As a more-specific manifestation of action that responds to informational uncertainty in seller–buyer relationships, others-focused action (as a substitute for promise, where promise is difficult due to relational uncertainty) reflects activities that serve to resolve relational uncertainties that arise because information about the parties to the exchange – such as their expectations and trustworthiness – must also be generated. By stimulating specific information flows, promise-type actions taken by opportunity creators reduce relational uncertainty about, for example, what mix of goods and services is wanted, and how much will be demanded (cf. Clark, 1985, p. 236); but also about how reliable the other party to the exchange will be in keeping commitments (cf. Ghemawat, 1991). Such action-invoked information can enable opportunity creators to better define roles or

relationships, build trust, or identify stakeholders thereby overcoming uncertainties related to, for example, liabilities of newness, and/or suspicion or distrust in exchange relationships (Aldrich & Fiol, 1994; Lewicki, Tomlinson, & Gillespie, 2006; Mitchell, Agle, & Wood, 1997; Stinchcombe, 1968). Some of these action-based processes, as described in the literature, include the construction and maintenance of relationships and commitment with customers (e.g., Morgan & Hunt, 1994), in trade and professional associations (e.g., Rademakers, 2000), through use of technology (e.g., Morse, Fowler, & Lawrence, 2007) and, particularly in Asia, through *guanxi* networks (e.g., Su, Mitchell, & Sirgy, 2007). Such others-focused action by entrepreneurs can, we argue, reduce the impact of relational uncertainty on the creation of economic exchange, and thereby on the creation of opportunities.

As a more-specific manifestation of action that responds to informational uncertainty in product-buyer relationships, works-focused action (as a substitute for competition, where gaining and maintaining competitiveness is difficult due to resource uncertainty) reflects activities that serve to resolve uncertainties about the competitiveness of emerging works. Such uncertainties arise because information about which technologies will best satisfy perceived customer needs and preferences and information about the nature of the customers' preferences themselves must be sought out (cf. Clark, 1985, p. 236). By stimulating specific information flows, competition-type actions taken by opportunity creators reduce resource uncertainty by addressing resource constraints. Where entrepreneurs focus on being resourceful, capitalizing on prior knowledge, differentiating or inventing with a purpose (Bradley, McMullen, Artz, & Simiyu, 2011; Branzei & Vertinsky, 2006; Cohen & Levinthal, 1990), they reduce the impact of resource uncertainty on the creation of economic exchange, and thereby on the creation of opportunities.

While research is needed to explore the extent to which iterative processes of others-focused action and works-focused action respectively increase exchange creation, by reducing relational uncertainty and resource uncertainty, extant arguments within the literature would seem to support this theoretical approach. Notably, Alvarez and Barney (2005) describe three ways of organizing firms under conditions of uncertainty: clan-based organization, expert-based organization, and charisma-based organization, which may be likened to the theory we are developing. The notion of compositional similarity (cf. Chan, 1998; Rousseau, 1985; Smith et al., 2009) gives credence to the idea that a variable conditions/action relationship, such as the one we suggest, can lead to variation in opportunity creation.

We believe it to be worthwhile to further examine the theoretical usefulness of this similarity. We therefore acknowledge that differences exist between our approach and that of Alvarez and Barney (2005) – for example, their focal level of analysis is the firm and their outcome of interest is the allocation of decision rights and residual profits. But because the types of uncertainty that we suggest shape opportunity creation seem to roughly correspond to two of their three respective ways of organizing (clan-based and expertise-based), they may be highly useful for future theory development concerning the action-creation linkage.³

Clan-based entrepreneurial firms focus on the potential for opportunistic behavior by other parties to the exchange. In the face of the potential for opportunistic behavior, a clan-based firm is “characterized by a high degree of trust on the part of those involved” (Alvarez & Barney, 2005, p. 782). For clan-based entrepreneurial firms, the focus is on the *absence* of relational uncertainty, which stems from the existence of a clan. But whereas in clan-based firms “an exchange only becomes possible if a clan already exists” (Alvarez & Barney, 2005, p. 783), we suggest that individual entrepreneurs engage in others-focused action that enables, for instance, the development of trust to reduce the relational uncertainty they face in opportunity creation resulting from the potential for opportunism (cf. Aldrich & Fiol, 1994; Barney, 1990; Barney & Hansen, 1994; Nagin et al., 2002).

Similarly, expert-based entrepreneurial firms focus on the future value of resource investments in an exchange. As Alvarez and Barney describe: “although it is not possible to use information about the future value of an exchange to organize a firm under uncertainty, it may be possible to use information about the value of the opportunity costs of individuals” (2005, p. 784). The potential uncertainty about differences in resource investments is central to the emergence of expert-based organizations. But whereas an expert-based firm reduces uncertainty based on who has the greatest opportunity costs (due to expertise) and as a result is best positioned to maximize the value of the exchange (Alvarez & Barney, 2005), we suggest that entrepreneurs engage in works-focused action that enables, for instance, the innovative use of resources to reduce the resource uncertainty that they face in opportunity creation as a result of questions regarding the availability and value of the resources involved (cf. Alvarez & Busenitz, 2001; Carter, 1989; Conner, 1991). And while not directly implicated in reducing resource uncertainty, expertise that stems from tacit learning developed in the process of innovation may nonetheless be relevant (cf. Alvarez & Barney, 2007; Mitchell, Friga, & Mitchell, 2005; Mitchell et al., 2000).

Limitations and Future Research

The results we report and our interpretation of them are conditioned upon certain limitations. First, as we have noted, the participants in our study were students. While use of student subjects may not be appropriate in certain entrepreneurship research (Chandler & Lyon, 2001; Robinson, Huefner, & Hunt, 1991), we have argued that because our focus is on economic exchange, which is a basic element of socioeconomic activity (Commons, 1931, 1932), and because economic exchange is as applicable to students as it is to entrepreneurs, managers, customers, or other similar socioeconomic actors, our use of student subjects would seem to be appropriate. Specifically, in sampling from a student population we were able to control for external sources of variance, while still capturing the fundamental elements of exchange in a nontrivial and theoretically consistent context. As previously noted, any role-specific characteristics of student subjects (see e.g., Sears, 1986) would not seem to preclude their participation in an experiment investigating opportunity creation. Nonetheless, future research would be wise to consider the actions taken by entrepreneurs that result in an economic exchange. This might be accomplished through qualitative methods (cf. Bansal & Corley, 2011; Strauss & Corbin, 1990) that use interview data from entrepreneurs to increase the generalizability of the findings.

Second, due to limitations in the size of the pool of potential participants, in the experiment we manipulated the conditions of uncertainty in the form of relational uncertainty and resource uncertainty collectively (versus individually), which limited our ability to separate out the effects of each individual condition. Future research should thus attempt to understand the individual effects of relational uncertainty and resource uncertainty on opportunity creation. One approach to accomplishing this might include a series of qualitative studies that look at the importance of both relational uncertainty and resource uncertainty as the opportunity creation process unfolds.

Third, the task in the experiment involved the creation of opportunities using noun and adjective cards from *The Big Idea* (Ernest, 2006), as opposed to the creation of “actual” business opportunities. A primary benefit of experiments, however, is that they control for extraneous variables that might bias the results, thereby increasing the internal validity (Campbell & Stanley, 1963). In designing the experiment, we therefore sought a task that would (as much as possible) capture real-world exchange within the confines of a controlled laboratory experiment. Nonetheless, future research should

attempt to more fully address questions of external validity, especially regarding the specific actions entrepreneurs take to address relational uncertainty and resource uncertainty.

For instance, experience sampling (Foo, Uy, & Baron, 2009) represents a promising avenue for beginning to accomplish this. By asking nascent entrepreneurs to indicate what they are doing and why (in real-time), researchers would be able to understand the extent to which entrepreneurs engage in others-focused and/or works-focused action in their pursuit of “actual” business opportunities. In addition, researchers would better understand the degree to which such action actually contributes to the creation of economic exchange. In a very real sense, such sampling techniques will enable us to understand the enactment process. Alternatively, levels of both relational uncertainty and resource uncertainty could be manipulated in field experiments with student-based businesses. Similarly, in such an approach, various kinds of training could be given to students in terms of the kinds of others-focused and works-focused action that could enable understanding of the efficacy of different kinds of entrepreneurial actions in dealing with relational uncertainty and/or resource uncertainty.

As we have looked toward future research, in both laboratory and field settings, key questions follow from an answer to the question: When might an entrepreneur be expected to bring an opportunity into existence (cf. Alvarez & Barney, 2005, 2007; Mitchell et al., 2008)? For example, one might ask: if economic exchange is not simply assumed, what possible extensions are needed to integrate the concepts of opportunity creation as they have been further developed? What integrative purposes does an exchange-based theory of opportunity creation accomplish? What roles does the developing literature on entrepreneurial cognition (e.g., Mitchell et al., 2002, 2004, 2007) and entrepreneurial learning (e.g., Lévesque, Minniti, & Shepherd, 2009; Minniti & Bygrave, 2001) play in the integration of this literature into the opportunity emergence literature? To what extent is exchange itself a learned capability (or set of capabilities)? Where might alternative understandings about opportunity emergence come from? These, and other such questions, suggest a potentially fruitful research pathway toward and an ever-better understanding of the exchange/conditions/opportunity-creation nexus.

In this chapter we have sought to explore the nature of the uncertain conditions that shape opportunity creation. In doing so, we have also produced an alternative narrative for previously held notions that certain exchanges somehow just appear – an assumption that is highly useful for

analysis in some fields – possibly those that do not concern entrepreneurship, but needs a better story where opportunity emergence is concerned. It is, therefore, our hope that the outlines for a theory of opportunity creation: as iterative entrepreneurial action that results in economic exchange, can be helpful to all who seek to better explain where created opportunities come from.

NOTES

1. While beyond the scope of this chapter, in opportunity discovery theory an exchange is defined to be an individual, *discovering* a work that is purchased by other persons.

2. Although buying encompasses purposes in addition to investing, we use the term invest as a subset of buying (i.e., all investing is buying, but not all buying is investing). Use of this term enabled us to design an experimental task that allowed subjects to easily reconcile the ostensible with the actual purpose without compromising the veracity of the task.

3. The third way of organizing, charisma-based, does not directly map onto our framework, and is accordingly not covered in depth herein. Instead of addressing uncertainty that stems from the presence of others in an exchange and/or uncertainty that is related to the resources needed to create a work for an exchange, charisma-based entrepreneurial firms focus on the individual entrepreneur (still a key part of an economic exchange), but in a way that does not fully capture the breadth of the informational uncertainty implicated.

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APPENDIX: EXAMPLE CARDS/COMBINATIONS

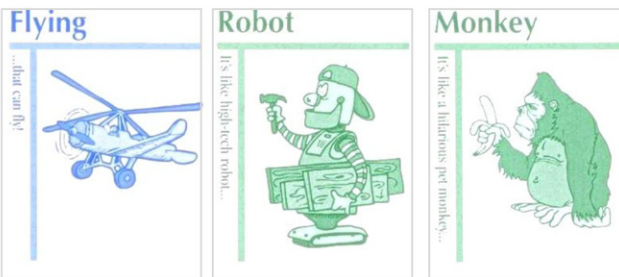
EXAMPLE CARDS



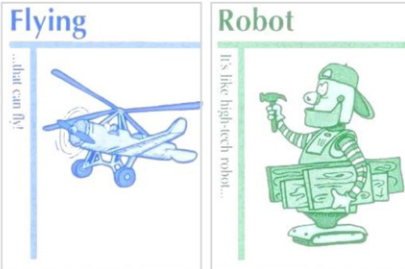
EXAMPLE COMBINATION A



EXAMPLE COMBINATION B



EXAMPLE COMBINATION C



Written Instructions

(Differences between conditions are underlined, with the [low] condition in brackets)

**INVESTMENT SATISFACTION AND
EVALUATION – PART A***Directions*

In this task, you will create and invest in opportunities in order to set the stage for the second part of the study wherein you will evaluate the satisfaction and perceptions of investment opportunities. As part of setting the stage, you will create and invest in opportunities with two other individuals [team members]. Once you begin, you will have 20 minutes for this first portion.

Task

As part of setting the stage, this investment task involves creating potential opportunities based on combinations of “adjectives” like *flying* and *herbal* and “nouns” like *robot* and *monkey* that are “purchased” by the other individuals [team members] using “investment” chips. Based on these investments, in the second part you will then *evaluate* satisfaction and perceptions of both your own opportunities and investments and the opportunities and investments of the other two individuals [team members]. You will be rewarded based on your performance.

Rewards

You are competing against one another [other teams]. All participants will be paid a base amount of \$3 [(i.e., \$9 per team)], but only the individual in the first place [top 1/3 of all teams] will receive \$10 [\$30 (i.e., \$10 each)]. The individual in second place [middle 1/3 of all teams] will receive just \$5 [\$15 (i.e., \$5 each)] and the individual in third place [bottom 1/3 of all teams] will only receive \$3 [\$9 (i.e., \$3 each)]. Thus, the better your individual [team]

performance, the more you will be paid. Your performance will be based on creating, investing/buying and selling opportunities.

Materials

Each individual [team member] will receive 5 adjective cards, 5 noun cards, some colored investment chips [14 extra cards], and a set of colored response sheets with a list of nouns and adjectives corresponding to cards that may be used in the study. Note that the cards that you will receive will include a subset of the words listed on your response sheet. Also note that the cards and response sheets each individual [team member] will receive are unique.

Task Rules

To complete the task, you are to combine adjective cards and noun cards in any way you see fit to create “opportunities for investment.” The phrase “in any way you see fit” means that there are no “wrong” combinations. Opportunities for investment must, however, have a minimum of two cards. For example, the cards *flying*, *herbal*, *robot*, and *monkey* could be combined to result in “*flying robot monkey*” or “*flying monkey*.” However, *exact* combinations (cards and card order) can only be invested in once and you cannot invest in your own ideas. The response sheets are designed to serve as a record of the word combinations and investments for each opportunity (so use a separate sheet for each one). Put a number “1” by the word corresponding to the first card in your opportunity, a number “2” by the word corresponding to the second card in your opportunity, and so on. An example response sheet is provided on the back page.

Once an idea has been created, but before selling the idea to others, the individual must provide two chips – representative of effort in the marketplace – to the bowl in the middle of the table. This must occur with each opportunity. As soon as you do so [generate an opportunity], you can begin to compete to sell these combinations of potential opportunities to the other two individuals [team members] for investment, while at the same time investing in the other two individuals’ opportunities [team members opportunities] with your own chips. [Note, however, that anything that you create, somebody from your team should buy; likewise, you should buy anything that someone from your team creates.] To sell the idea, the

individual [team member] who created the opportunity sets a price. If others decline to invest in the opportunity at that price, then the individual must either set a new price at which to sell the opportunity or abandon their attempts to sell that specific opportunity, without receiving their two chips in return. No buyer may name a price; prices are always named by seller [sets a price with another team member so that an investment occurs]. Continuing the example, when one individual [team member] (e.g., Yellow) creates an idea at a price that another individual (e.g., Red) likes such as *herbal monkey* for three chips, the other individual [another team member] (e.g., Red) will “purchase” the opportunity. Note that only one individual [team member] can invest in each created opportunity, meaning that in the example Blue could not invest in *herbal monkey*. You may, however, use your cards more than once to create *new* opportunities, although you may not use the cards of others.

While the task does involve selling potential opportunities to other individuals [others in the team], no cards are actually exchanged, only the response sheets (which are given to the investor). Additionally, once chips are invested they may not be used again by anyone, but instead serve with the response sheets as a record of the transaction.

[Additionally, if you would like new cards to work with, you *may* at any time choose to swap any single noun or adjective card with any one from the corresponding draw pile. Cards can be swapped more than once. But if you want a new card, you must discard so that only 5 adjectives and 5 nouns are being used at any given time. You are not, however, required to discard if you would rather continue to use what is in your hand. Also, you may not draw cards from the draw piles of the other two team members.]

Again, this first part of the task sets the stage for the second part of the task. Remember, that you are competing [working together to compete] against one another [other teams] and will receive a payout in terms of your individual [team] performance, with one of you [some teams] receiving \$10 [per person], one [some] receiving just \$5 [per person] and one [some] only receiving \$3 [per person]. Of course, there is nothing to prevent you from cheating the others in the task. You will have 20 minutes for this first portion.

Example Response Sheet			
<p>Instructions: Use this response sheet to record the word combinations of each <i>invested</i> opportunity (using a separate sheet for each one). Put a number "1" by the word corresponding to the first card in your opportunity, a number "2" by the word corresponding to the second card in your opportunity, and so on. Also put the number of chips received for the opportunity, and check off what player invested in the opportunity.</p>			
Potential Adjective Cards		Potential Noun Cards	
___ Auto-	<u>1</u> Herbal	___ Butler	<u>2</u> Monkey
___ Bathing	___ Inflatable	___ Caveman	___ Nothing
___ Battle-	___ Invisible	___ Chef	___ Obelisk
___ Bourgeois	___ Kitchen	___ Comic	___ Phone
___ Cyber-	___ Kitty-	___ Dauphin	___ Rack
___ Desktop	___ Liquid	___ Decadence	___ Robot
___ Family	___ Low-Carb	___ Decoy	___ Secretary
___ Flying	___ Piggy-	___ Game	___ Shark
___ Foot-	___ Puppy-	___ Kilt	___ Toy
___ Hawaiian	___ Training	___ Magnet	___ Vegetables
<p># of Chips Received as Investment <u>3</u></p> <p style="text-align: center;"> <input type="checkbox"/> Blue <input checked="" type="checkbox"/> Red </p>			