INITIAL SOCIAL EXCHANGE WITH POTENTIAL BAD FAITH ACTORS

by

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ABSTRACT

PATRICK FRANCK. Initial Social Exchange With Potential Bad Faith Actors
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Social exchange occurs in every facet of daily life, and exchange theory assumes that actors encounter ambiguity and uncertainty when interacting. Currently, a limitation in social exchange theory is the lack of research on deceit or opportunism, and there is only limited work examining how social relationships are initially established. Initial relationships are difficult to establish because of uncertainty caused by incomplete knowledge of others' intentions and the risk of exploitation. I propose that the possibility of fraud or exploitation directly affects how individuals trust a new partner based on the ability to interpret risk and uncertainty. I develop a theoretical argument linking the possibility of fraud or exploitation to levels of trust between individuals, focusing on actors' ability to interpret risk and uncertainty. If individuals deem that they cannot trust their partner, then to secure a new relationship and successfully exchange, individuals adopt risk reduction mechanisms. I conducted an online crowdsourced experiment to test when individuals would turn from trusting their partner for an initial exchange to employing a trusted third party to provide assurance for the exchange based on the levels of risk and reputation. The results support that risk perception and adoption of risk reduction are significantly related, but the cause of risk requires further refinement and future research.

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INTRODUCTION

"An important limitation in current work in social exchange theory is the absence of deceit or opportunism in experimental designs." -Peter Kollock (1994:317)

Social exchange occurs in every facet of daily interaction and offers a variety of mechanisms for people to exchange information, money, status, goods, and services. Social exchange has a robust research tradition that examines many of these details, yet there is limited research on the conditions that promote or facilitate initial exchanges between unacquainted actors. Researchers have largely side-stepped initial conditions by establishing and enforcing the context of the exchange and have limited investigation on emerging exchange structures (Kollock 1994). As a result, relatively little empirical research has examined the processes through which actors evaluate an exchange with someone they do not know, even though this type of exchange is ubiquitous in modern life. For example, initial exchanges are common in online marketplaces, such as dating apps, car-sharing, time-sharing, house-swapping, eBay, craigslist, and Facebook marketplace. The aim of this study is to provide empirical investigation into the necessary conditions for when an actor will trust their new partner and have a successful initial exchange.

Exchange theory assumes that actors encounter ambiguity and uncertainty when interacting (Lawler 2001). This theory explains actors jointly overcoming these obstacles and responding to differences in potential value, utility, and exchanges in different networks (Lawler 2001). As such, initial exchanges are particularly difficult to establish because they must take place without full knowledge of the other's intention, and exploitation is always possible (Molm

2009). To understand how initial exchanges are established, I develop a theoretical model centered around trust, risk, perception of risk, and risk mitigation. I then present results from an online experiment designed to manipulate the value of a transaction and uncertainty to test how much actors trust their partners. For this test, I measure participants' perception of risk and the implementation of a risk reduction mechanism via a trusted third party.

I begin with an overview of research on social exchange, the definitions, scope conditions and research question associated with this study. Then, I outline my theoretical model through the risk associated with transaction value, uncertainty, perception of risk and risk mitigation. I build an argument for my four hypotheses that 1) relative value of exchange resources encourage adoption of a risk reduction mechanism and 2) uncertainty about the reputation of a new exchange partner encourages adoption of a risk reduction mechanism. My third and fourth hypotheses relate to the mechanism through which value and reputation affect exchange processes: 3) Perceptions of risk mediate the relationship between the value of the transaction and use of a risk reduction mechanism. Similarly, 4) the perception of risk mediates the relationship between reputation and use of a risk reduction mechanism. After presenting my theoretical model, I describe a study I conducted to test my claims regarding risk, uncertainty, and risk reduction, then I present results from my analyses. Lastly, I discuss the implications of my results and consider areas for future research.

OVERVIEW OF SOCIAL EXCHANGE

To understand initial social exchange, I cover the basic background of social exchange theories and the primary forms of it. I list the differences between them and why this provides an

opportunity to explore initial exchanges. From a theoretical perspective, social exchange occurs any time two or more people interact. These exchanges are embedded in dyadic situations, groups, organizations, and institutions, making social exchange an integral part of daily life. Social exchange is divided in two types: indirect and direct (Molm 2003). Indirect exchange occurs through generalized processes (Molm 2003), where resources pass among three or more partners and benefits are secondhand. Direct exchange takes on one of two different forms: Negotiated exchange and reciprocal exchange (Emerson 1972; Kollock 1994; Molm et al 2000, Molm et al. 2003). Early social exchange theorists focused on negotiated and reciprocal exchange as forms of direct, two-party exchange, in which actor A provides benefits to actor B and actor B to actor A (Molm 2009).

Negotiated exchanges are agreed-upon transactions—of any form—that take place between two or more parties. An agreed upon transaction creates a cognitive-based trust because violation of the negotiation carries the potential of social sanctioning for the violating actor and should provide protection for the other actor (Molm et al. 2009). In negotiated exchange, actors jointly bargain over the terms. Bargaining requires communication, potential compromise, and negotiations with offers and counteroffers. At the end of negotiations, both actors communicate exactly what they are getting from the exchange before making it. Knowing what actors will give and receive comes from the resulting contracts, making the exchange guaranteed. With a guaranteed exchange, risk and uncertainty are substantially mitigated (Molm et al. 2009).

However, uncertainty can still exist under different conditions in negotiated exchange. For example, if the agreements are not strictly binding, or if there are significant “lag times between promises and delivery creates opportunities for defection” (Molm 2000;1401).

Furthermore, if the value of resources are unknown, this introduces uncertainty into the exchange because actors have no method of understanding if they will receive fair value. (Kollock 1994; Molm et al. 2000). Additionally, the bargaining or negotiation process itself can be a source of uncertainty; How actors choose to bargain and which tactics influence the likelihood of reaching agreements (Molm et al. 2000). If the right conditions hold, negotiations create a bilateral exchange, in which neither actor can profit without an agreement that benefits both. As a result, negotiated, bilateral exchanges are typical for commerce (except for fixed-price trades) and have limited social implications.

Reciprocal exchange occurs by building trust through successful iterations of exchange (Molm 2009). Building trust over time creates an affective-based trust as "actors contributions are separately performed and nonnegotiated" (Molm et al. 2000:1399). Actors initiate exchange individually, often by performing a beneficial act for another without knowing when, where, or how the other actor will reciprocate in the future (Molm 2009). More specifically, there is no guarantee of reciprocity (Molm et al. 2000). The lack of knowledge in reciprocal exchange means benefits flow unilaterally, and relationships form by sequentially contingent acts where obligations are repeatedly created and repaid (Molm et al. 2000; Molm et al. 2009).

Negotiated and reciprocal exchange differ on two primary dimensions and one secondary dimension. First, these two forms of exchange differ regarding whether actors' outcomes are contingent on joint or individual action (Molm 2009). Second, they differ by the level of information actors have about the terms and timing of the partner's reciprocity (Molm 2009). The third dimension surrounds the extent to which the other's reciprocity is guaranteed based on the information available (Molm 2009). Investigating the third dimension with how actors

evaluate the likelihood of reciprocation—even in negotiated exchanges—is critical to understanding the conditions for a successful initial exchange.

In summary, the most common form of exchange is direct, where negotiated exchange fills the majority of economic and commerce needs and reciprocal exchange fills social or informal needs. The differences between negotiated and reciprocal exchange enables investigation for how actors interpret the initial exchange and evaluate how certain they are about the exchange's success.

Definitions

Since exchange operates under different processes and interactions, I concentrate on nine processes and their definitions (though more exist) within social exchange. I describe interactions as occurring between person (P) or actor and other (O) or partner. In an exchange, the value of the transaction is determined by P and O, in the sense that the seller, P, offers a price, and O must decide if the good or service is worth that value. Actors P and O both bring their reputations into the exchange. *Reputations* are attributes or characteristics associated with an individual that serve as an indicator for future behavior (Kollock 1994). In terms of exchange, reputations serve as an indicator that an actor will hold to their end of a deal in the absence of complete information (Yamagishi 1994; Jiao, Przepiorka, Buskens 2021). If actor P has incomplete information about O, then P must rely on available information about O's reputation to infer and trust that future behavior will occur.

If reputation indicates future behavior, then uncertainty arises when an actor "does not have the capability to correctly detect [their] partner's intentions" (Yamagishi 1994). Estimating the probability of obtaining a good or poor outcome is based on the amount of available

information (Molm et al. 2009). This information could include the partner's intentions or past behavior, the value of what the actor will receive, or the quality of goods and services (Kollock 1994; Molm et al. 2009). As both actors have and operate off different relevant information, the difference of knowledge about partners creates *information asymmetries* (Kollock 1994). Asymmetric information creates *uncertainty* about the trustworthiness of an exchange partner's abilities and intentions (Kollock 1994).

Unlike uncertainty, which relates to an individual exchange partner, *assurance* relates to the exchange structure (Yamagishi 1994). This involves the expectation of honest behavior for external reasons beyond the goodwill of the exchange partner (Yamagishi 1994). This honest behavior is due to the knowledge and existence of an incentive structure that assures both parties (Yamagishi 1994). Assurance is different from reputation and uncertainty because if two actors are transacting with an incentive structure in place, then the expectation is that the actors will behave honestly because of self-interest. Self-interest could prevent a punishment or provide a benefit due to the incentive structure. Therefore, an external incentive structure enables honest exchange without using reputation or certainty, by providing assurance rather than trust (Yamagishi 1994).

Yamagishi (1994) defines trust as the expectation of benign behavior based on inferences about a partner's personal traits and intentions. If expectation is removed, trust can be defined as something that "increases one's vulnerability to another whose behavior is not under one's control, [this allows for] conscious regulation of one's dependence on another" (Kollock 1994:319). Being vulnerable to another person is a precondition for trust development because a level of risk must be present to test trust (Kollock 1994). Altogether trust is increasing one's

vulnerability to another with an expectation of benign behavior. For example, if an actor trusts their partner, they are more likely to increase potential vulnerability because they expect their partner to return an equally valued good or service or return the control of the resource.

Molm et al. (2009) defines *risk* as the situational potential for incurring a net loss; or "in the context of exchange, the potential for giving benefit to another without receiving something valued or expected in return" (Molm et al. 2009:5). The relative risk of the exchange depends on the level of certainty that an actor has for obtaining a favorable outcome (Molm et al. 2009). The amount of certainty corresponds with a perception of risk that an exchange actor will receive fair value, where an actor's vulnerability to their partner will not be taken advantage of. Fair value is achieved when an actor believes that the value of an item or act given to O is equal to the value of the goods or services received from the actors' exchange partner. If the perceived value is a 1:1 ratio, then the exchange is fair. The likelihood of fair value is moderated by the levels of uncertainty and value that each partner determines when (or prior to) entering an exchange. If the uncertainty and value shape a perception of risk that is too high, actors will try to reduce the risk. The implication is that as actors engage in an exchange, the success of the transaction is dependent on the actor's perception of exchanging fair value.

Risk reduction mechanisms lower the chance of an exchange failing or reduce the chance of unfair transactions. This process could represent itself as lowering risk perception, equalizing reputation concerns, or guaranteeing that the transaction value is secure and reciprocated. One method of meeting these criteria is to use a Trusted Third Party (TTP). Hu et al. (2004) provided simulation models of the effects of TTPs and was empirically supported by Kollock (2006) to

uphold the notion that TTPs effectively reduce the actions of bad faith actors and increase the ability to secure fair transactions.

Research Question and Scope Conditions

One of the limitations of social exchange theory is the lack of research on deceit and opportunism (Kollock 1994). Due to potential deceit or opportunism, actors in social exchange are vulnerable to each other based on mutual but often unbalanced dependency, indicating that trust and risk are integrated with social exchange (Molm et al. 2009). Because of this vulnerability, actors deal with uncertainty and may try to infer their partner's intentions and the potential for reciprocity. However, initial exchanges must take place without full knowledge of the other's intention, and exploitation is always possible (Molm et al. 2009). Current research largely assumes good faith actors, and as a result, theoretical models do not adequately account for bad faith in negotiations. Nonetheless, in a wide variety of real-world contexts, actors experience concerns about the trustworthiness of potential exchange partners, a problem made particularly acute in the digital era through online scams and email phishing. People do not implicitly trust offers from unknown and unproven exchange partners.

Since the possibility of fraudulent or malevolent action is real, this should directly affect how an individual interprets an exchange in terms of the actors' ability to trust potential partners, evaluate risk, and understand the level of certainty that actors will reciprocate equally to ensure a successful exchange in a nonbinding agreement. However, if an initial exchange offers no incentive structures (assurance) or developed trust, then both parties have limited means to reduce uncertainty. This poses a question of trust for actors in an initial exchange: How do actors interpret an initial negotiated exchange that contains the possibility for bad faith actors and

fraudulent exchanges? More simply, I ask: What are the conditions for a successful initial negotiated exchange? I attempt to answer this question by examining and measuring the point at which an actor goes from trusting their partner to employing a risk mitigation mechanism, which assures an exchange.

The scope conditions for my experiment are initial negotiated exchanges tested in an online model for one-time, dyadic exchanges in which the exchange partners have not interacted before. I examine negotiated exchanges because the trust for a reciprocal exchange cannot be established in a one-time interaction.

THE CASE FOR INITIAL EXCHANGE CONDITIONS

Although extensive research has been carried out on social exchange, no single study has focused exclusively on how people establish initial exchange relationships. Research to date has stated that initial exchanges are risky, uncertain, and exist with the opportunity of fraud, but none have built arguments for how actors overcome these concerns (Kollock 1994; Molm 2009). Here, I argue that trust is necessary to overcome these conditions. If trust is not sufficient, and an exchange appears likely to fail, then actors will adopt a risk reduction mechanism to ensure an exchange. In testing the conditions in which participants adopt a risk reduction mechanism, I aim to outline the balance of trust and risk in initial exchanges that result in successful exchanges.

How Value and Uncertainty Create Risk

To begin understanding initial social exchange, I examine how risk from value is created and assessed by actors through the lens of Prospect Theory (Tversky & Kahneman 1992). This theory identifies a two-phase process of choice that results in four patterns of decision making

under risk, specifically when dealing with money or value (Tversky & Kahneman 1992). In the first phase, framing, an actor constructs a representation of the acts and relevant outcomes to the decision (Tversky & Kahneman 1992). In the second phase, valuation, the actor "assesses the value of each prospect and chooses accordingly" (Tversky & Kahneman 1992:299). The four risk patterns are: 1) reference dependence, 2) loss aversion, 3) diminishing sensitivity, and 4) probability weighting (Tversky & Kahneman 1992; Barberis 2013). For an unestablished exchange, I presume that loss aversion and probability weighting will influence the perception of risk the most. This is because people are, on average, more sensitive to a loss than a gain of the same magnitude and tend to overestimate the likelihood of events with low probabilities while underestimating those with high probabilities (Barberis 2013).

Both reference dependence and diminishing sensitivity should have little relevance to a single one-time exchange. Reference dependence refers to actors measuring loss and gain relative to the value of the exchange, as opposed to total value. (Barberis 2013). For example, people playing cards at the same table produces multiple rounds of exchange with the same actor(s); where every loss and gain is viewed in perspective to the exchange value (or poker pot) as opposed to total wealth (or total chips on the side). Therefore, reference dependency implies that each exchange is considered from the point of reference for that exchange, and that exchange alone. Additionally, an exchange partner is unlikely to experience diminishing sensitivity from a single, one-time exchange. With loss aversion and probability weighting, if the value of a transaction increases and the potential loss increases, an actor will estimate a higher risk regardless of the potential gain (Barberis 2013). Therefore, any potential loss is weighed with greater potential risk. The risk patterns tell us that risk involves the possibility of losing

what is put on the table, and the more salient the risk, then the larger perception of risk actors will have.

Prospect theory is not the only framework for understanding risk perception. Uncertainty is another condition that creates perception of risk through environmental factors (Emerson 1972; Cook et al 1983; Molm 2009). Kollock (1994) provides some insight to the effects of the environment on social exchange with a study on different markets by Siamwalla (1978) and Popkin (1981). Kollock (1994) argues that in a market with unknown quality, buyers are not motivated to pay a high price for goods of unknown quality and producers are not motivated to produce high quality goods because there is no simple, objective way of displaying the care they took (Kollock 1994). Such a situation creates a social dilemma—where individually rational behavior leads to collectively irrational outcomes—caused by asymmetric information. Ultimately, if actors are not required to trade in good faith and there are no regulatory agencies to provide assurance by monitoring the actions of exchange partners, then the exchange can take the form of a social dilemma (Kollock 1994). A social dilemma can invoke concerns of probability weighting and loss aversion, causing an uncertain actor to consider the chance for loss to be higher than it really is, leading to loss aversion. If the environment surrounding an exchange creates a social dilemma structure, there may be wide variation on the perception of risk in an exchange. Therefore, I make the following assumptions:

Assumption 1: *As the perceived value of a transaction increases, the salience of risk increases.*

Assumption 2: *As the salience of risk increases, uncertainty about receiving fair value increases.*

How Uncertainty Increases Risk Perception

Prospect theory and environmental asymmetric information offer insight to risk through loss aversion, probability weighting and social dilemmas, but they do not offer insight on uncertainty regarding an exchange partner. There is still an asymmetric information component to individuals that introduces uncertainty for the actors. Reputation and status have the potential to bridge the actors' informational asymmetry gap. I argue that status characteristics play an integral part in negotiated and reciprocal processes in social exchange which determines who we exchange with, trust, and develop certainty from.

Thye (2000) examines the effects of status on social exchange and finds that the status of an exchange partner affects the value of the exchanged resources. When a low status actor trades with a high-status actor, the low status actor perceives the value of the transaction higher than exchanging with an equal or lower status actor (Thye 2000). This principle explains how a transaction with an item that has a set monetary value is viewed as being 'worth more' from a high-status actor than from a low-status actor. This concept reflects the spread of status value because the exchange is no longer exclusively focused on the transaction, but also involves a transfer of status (Thye 2000).

Granovetter (1985) highlights why the spread of status value is important within a network of exchange relationships because status is likely to be a key source of trust. Granovetter (1985) states that, "the widespread preference for transacting with individuals of known reputation implies that few are actually content to rely on either generalized morality or institutional arrangement to guard against trouble" (Granovetter 1985:490). Reputation is a critical part of network relationships and is a "characteristic or attribute ascribed to one person . . . by another" (Wilson 1985, pp. 27-28). Reputations allow unacquainted actors to develop a prediction of

likely future behavior that superimposes past behavior as an indicator for future behavior (Kollock 1994).

Reputation then, fills informational gaps in an initial exchange with incomplete information (Kreps & Wilson 1982; Wilson 1985). If there is limited information from either party about the other, they must both evaluate the chance of a successful exchange through this lens. Wilson (1985:59) argues that "differences in the information available to participants make their strategies acutely sensitive to their beliefs and expectations". If reputation informs potential future behavior, and in an information asymmetric exchange, then it follows that those actors will be concerned about their own reputation and their partner's reputation within the exchange. Kollock (1994:320) supports this by stating that "this concern will vary depending upon the amount of risk in the exchange, with situations characterized by a high degree of uncertainty, leading to a greater concern for reputation." If reputations are matched with an expectation associated with the characteristics of an individual and are used by actors to assess likely future behavior, it is possible that with incomplete information, then status characteristics could be used to fill in the gaps of missing information and predict future behavior.

To summarize, if individuals' value reputation, then successful exchange will more likely occur with a reputable partner. A low reputation actor will create more uncertainty in the potential for a successful exchange and increase the perception of risk. In this situation, reputation serves as an indicator for how trustworthy a person is and how certain a person can be about an initial exchange being successful. This leads to the following assumptions:

Assumption 3: *Higher reputation actors result in more certainty about an exchange partner's intentions and behavior.*

Assumption 4: *Higher levels of certainty decrease perception of risk in an exchange.*

Assumption 5: *The perception of risk is directly related to the need to reduce uncertainty and mitigate risk.*

How Risk Perceptions Leads to Risk Mitigation

The previous sections argued that value and uncertainty create risk and perception of risk by actors in an exchange. This section seeks to clarify actors' responses to dealing with risk and perception of risk in exchange. If ensuring a fair transaction is the preferred outcome, as it is the least costly for both parties (Williamson 2010), then how do actors respond in face of risk and perceived risk? I propose that in the presence of risk, and perception of risk, actors who are skeptical with an exchange will employ risk reduction mechanisms.

Actors may have skepticism because of uncertainty (Yamagishi 1994; Lawler et al. 2000; Molm et al. 2009) caused by reputation (Kollock 1994; Jiao 2021), or too much risk associated with value (Tversky & Kahneman 1992). A skeptical partner might have more concern about the exchange relationship balance. If these elements become unbalanced, then there is an increased perception of risk. The perception of risk must be outweighed by peace of mind for an exchange to be successful. One method for peace of mind to outweigh risk, is to employ a risk reduction mechanism.

Kollock (2006) found that in a marketplace setting, when risk increases, strong reciprocal relationships were the best mitigators when exchanges went wrong. Being able to buy a favor or help someone in the future who solves your current problem is an asset (Kollock 2006). However, in initial exchanges where reciprocal relationships have not been built and risk of exploitation exists, there is a need to mitigate risk and increase trust (Molm 2009). Due to the potential for fraudulent or bad faith actors in an exchange and a lack of trust in initial

relationships, different mechanisms are commonly used for managing risk (Kollock 1999). These mechanisms could be credit card companies, credit rating services, public accounting firms, and if exchanges go wrong, collection agencies or court systems (Kollock 1999).

These formal mechanisms exist as a form of third-party assurance that serves the backbone of many exchanges. Frequently in informal settings, reputation is a key source of risk mitigation, particularly in emerging exchanges (Kollock 1999). When incomplete information about an exchange partner exists, or their reputation is in question, then informal risk management is not sufficient for a successful exchange because they do not provide assurance (Kollock 1999). The lack of regulatory agencies and reliance on exchange partners to act in good faith results in a social dilemma because there is no assurance present in the exchange. Implementing a formal mechanism that increases assurance by changing the incentive structures surrounding an exchange can mitigate risk (Kollock 1999). One formal mechanism that affects the assurance of an exchange is a TTP. Hu et al. (2004) ran a simulation to examine the validity of escrow services as a TTP in a market exchange. Their simulations revealed that when strategic actors who may behave fraudulently have a TTP engaged in the exchange, fraudulent rates dropped to almost zero (Hu et al. 2004). Similarly, Kollock (1999) and Kollock et al. (2006) examined the effects of third-party intervention for managing risk by regulating reputation and providing mechanisms external to the exchange partners that administered assurance to the exchange. They found that while no mechanism is entirely perfect, trusted third parties offer a viable risk mitigation mechanism (Kollock 1999; Kollock et al. 2006). TTP's therefore can balance an exchange through the extension of the exchange relationship and regulates reputation concerns or provides external assurance to the exchange structure. This leads to my final assumptions:

Assumption 6: *Concerns of being taken advantage of are reflections of the perception of risk in the exchange.*

Assumption 7: *When perception of risk is too high, a trusted third party can be used to ensure an exchange that was previously unavailable.*

HYPOTHESIS

As transaction value increases, risk and the potential loss increases. The potential of loss, and exchanging with a new, unknown partner affect the level of uncertainty that an actor may have when transacting. These factors increase the perception of risk toward the success of an exchange.

Proposition 1: *If the value of the transaction is too great, then perceptions of risk will increase.*

Proposition 2: *If uncertainty is too great, then perceptions of risk will increase*.

If the reputation of the exchange partners is considered, then a poor reputation affects the certainty that an actor feels toward the chance of a successful exchange. Together, a poor reputation and low certainty of a successful exchange increase perception of risk.

Proposition 3: *The lower a potential partner's reputation, the lower certainty there is for exchange success.*

If the perception of risk is too high, then an exchange may fail unless measures are taken to mitigate that perception of risk. This is accomplished by changing the exchange structure and adding assurance to the transaction and mitigating uncertainty concerns. In this situation, a trusted third party may mitigate perception of risk.

Proposition 4: *If a TTP mitigates concerns about the certainty and adds assurance to an exchange then it mitigates the perception of risk.*

Proposition 5: *If a TTP is employed as a risk reduction mechanism, then previously unavailable exchanges can now occur*.

If the value, reputation, and risk conditions outlined function as the theoretical basis suggests, then I test the following hypotheses.

Hypothesis 1: As the value of a transaction increases, the likelihood of adopting a TTP increases.

Hypothesis 2: As the reputation of the exchange partner decreases, the likelihood of adopting a TTP increases.

Hypothesis 3: The relationship between value and TTP is mediated by the perceptions of risk.

Hypothesis 4: The relationship between status/reputation and TTP is mediated by perceptions of risk.

In what follows, I describe a test I designed to examine how value, reputation, risk perception, and uncertainty affect the adoption of a risk reduction mechanism in the form of a TTP.

METHODS

To investigate initial exchange, I designed an online experiment intended to replicate exchanges with similar cognitive conditions to those that participants would experience in online marketplaces such as Craigslist or eBay. After giving informed consent, participants received an initial description of the experimental task informing them to expect a two-phase experiment. Participants were told that phase one would involve exchange and phase two would be a short video game where they would use the resources acquired through phase-one exchange(s).

Participants were led to expect to enter an exchange after reviewing their partner's profile, and then fill out a survey about their expectations of their upcoming exchange and how they perceive their trading partner. At the beginning of the survey, they will select an option for the dependent variable—to adopt a TTP or not—before filling in the rest of the data. At the conclusion of the survey, rather than enter an exchange, the experiment was concluded, and the participants were debriefed that there is no exchange or video game.

Experimental Design

The study employs a 2 x 3 factorial design for six different conditions of exchange where two manipulations varied: Transaction value (high and low) paired with reputation (high, equal, and low). In each of the six resulting conditions, 50 participants were randomly assigned to each condition and completed independent trials. Participants were recruited using restrictive conditions on Amazon Mechanical Turk and paid $1.50 for their participation.

Since there was no actual interaction or exchange, this study can best be described as a vignette experiment. The vignette instructions informed the participants they were about to engage in a two-phase task, where phase one involved being paired with a partner to exchange resources and phase two was a video game in which they could redeem and use the exchanged resources. The participants were also told that they would perform better in phase two if they have more resources from phase one. This was done to ensure that participants were motivated to successfully complete at least one exchange.

During the instruction phase, participants learned that deception is possible in the exchanges and that either they or their assigned partner could elect to transfer an amount less than the agreed-upon exchange value. Participants then reviewed the reputation score of their

computer generated, randomly assigned trading partner along with the number of resources both parties have available for trade. After reviewing their partners profile, participants were presented with the opportunity to employ a TTP for three percent of the value of their negotiated exchange. Instructions stated that the TTP would guarantee that neither actor is able to behave deceptively, and that the transaction meets the negotiated terms. After deciding on the TTP adoption, participants were told to complete a pre-exchange questionnaire, at which point they would enter the marketplace to begin and finish a one-time exchange with their partner.

I attempt to develop participant buy-in to the resource system by inferring future value of the resources and the importance of gaining additional assets. However, because the primary behavior of interest (TTP adoption) occurs before any actual exchange, the experiment is terminated after the survey. That is, no exchange occurred, and the participant did not play any video game.

Variables

Dependent Variable.

The dependent variable in my vignette study is the participants choice to adopt a TTP for the exchange. The binomial choice of adopting a TTP or not just before the exchange indicates if the participant wants to rely on trust of their partner or assurance in the exchange. By manipulating the level of value and reputation involved in the transaction, I hope to determine at what level of risk an actor will no longer resort to trusting their partner and search for external means to ensure a successful exchange.

Independent Variables.

The first independent variable that I examine is reputation, manipulated using a starred rating system and reflected by a score of 1-5 stars, similar to many online reputation systems. Reputation can help actors infer future behavior and should help express the level of certainty that an actor has towards their partner's probability of trading in good faith. Higher reputations should indicate a higher level of certainty for the participants that the exchange will be honored as agreed on in negotiations. Therefore, a higher reputation score should be associated with a lower frequency of TTP adoption.

Participants were randomly assigned to conditions in which their ostensive partner had a high reputation, low reputation, or no reputation at all. In the high-reputation condition, the participant is paired with a trading profile that had a rating of 4.5-4.75 stars. The 4.5-4.75 was purposefully given to create a more realistic expression of the starred system, as finding a partner with a perfect 5-star review is exceedingly rare. In low-reputation conditions the participant was paired with a profile who had 1.5-1.75 stars. The 1.5-1.75 score was given to create the same effect of realism as the high star review, as someone with a perfect 1-star review is unrealistic and could develop suspicion of the experimental design. For the control condition, the participant was randomly paired with someone who also had no trading history and a reputation score of zero. As neither have traded, they do not have a reputation score associated with their profiles, which creates an equal condition of reputation because neither participant has any information about the other.

The second independent variable is the value of the transaction, measured by the number of resources that the participants were given to exchange. I theorized that the value of the transaction creates an element of risk, triggering potential loss aversion, and probability

weighting. Participants in the low-value conditions received 75 points to use during exchange and those in the high-value condition received 750 points. For a breakdown of the conditions and the independent variables, see Table 1.

TABLE 1: Conditions and independent variable matching

Condition	Partner Reputation (stars)	Partner Jewels	Participant Points
1	1.5-1.75	71-79	75
2	0	75	75
3	4.5-4.75	71-79	75
4	1.5-1.75	710-790	750
5	0	750	750
6	4.5-4.75	710-790	750

Conditions one through three are identified by the low-value of the transaction for both the partners jewels and participants points. Conditions four through six are identified by the high-value of the transactions. Note that conditions two and five are the control variables for zero reputation, indicating that the profile the participant is paired with has not exchanged with anyone else yet. For this reason, the starting jewel amount for the generated profile is static, as opposed to a range of values for the other conditions. The implication is that those with a reputation score, have exchanged at least once before, and are unlikely to have the original starting number of resources to exchange again.

Mediating and Control Variable.

I argue that the perception of risk functions as a mediating variable between the independent variables of reputation, the value of exchange and the dependent variable of adopting a TTP. As the reputation conditions and value change, the perception of risk is affected. If the perception of risk in the exchange is too high, then actors should adopt a TTP. I use two

conditions where the participant is matched with a partner of zero reputation as a control variable. This provides context between the high and low reputations when adopting a TTP for hypothesis two (reputation and TTP adoption) and the mediating hypothesis for perception of risk for reputation. Additionally, to eliminate the possibility of alternative trading partners, the participants were told they will be randomly assigned an exchange partner from another participant in the study—though no such partner exists. Additionally, the participants were told that they should extend every effort possible to complete the exchange and that their Mturk payment was dependent upon successful completion of the experiment.

In-depth procedures

Depending on the conditions assigned, the participants expect to engage in an exchange in which they would trade points with a partner who possessed jewels, and that both points and jewels were needed to be successful in the game. The participants were assigned a specific number of points related to the high or low transaction value condition. They learned that their trading partner possessed jewels, which constituted a second digital currency separate from the participants points. Neither point system was assigned a clear value, leaving it to the participant to determine value. They were instructed that over the next 15 minutes they would have the opportunity to conduct multiple, one-time exchanges with different, randomly assigned partners who are also participating in the study with the goal of acquiring as many jewels as possible and retaining as many points as possible. To provide potential for bad faith actors, the participants will be told that they may act deceptively—with no mention of whether their future partner may act deceptively.

The participants were informed that upon completing an exchange, they may rate their partner on a scale of 1-5, and that their partners will have a chance to rate them the same way. The instructions of the scenario stated that some of these partners will have conducted several exchanges already and will have a score associated with their profile. Others who have not traded yet, will not have a score. After being told how many points the participants will receive to exchange, they review the reputation score of their trading partner. Next, having received information about the value of the transaction and their partner's reputation score, participants were offered the chance to employ a TTP to ensure their transaction at the cost of three percent of their exchanges' point count. This standardizes the cost of the TTP involvement in the exchange for both high and low value conditions.

Manipulation Check and Questionnaire

I include questions to collect affective control data for further research unrelated to manipulation checks. The survey asks participants how much they agree with the following statements using a Likert scale of 1-5, with 1 being strongly disagree and 5 being strongly agreeing with the statement. The survey questions involve primary categories on the value of the exchange, the reputation of the trading partner, risk mitigation and the perception of risk involved.

This does four things; It informs how much of an effect risk and loss aversion—given the value of the transaction—had on the exchange. It tells how much of an effect reputation and perceived trust have on ensuring an exchange. It clarifies the differences of risk perception from uncertainty through reputation and value. Finally, it informs how participants viewed the structure of the exchange and its influence on trust or assurance. I attempt to activate Tversky

and Kahneman's (1992) reference dependency by not assigning value to the point system created for the experiment. This limits the ability of participants to judge the points on a US dollar value (or other currencies), and they will be required to develop their own value for the points involved.

RESULTS

A total of 314 participants were recruited from Amazon Mturk, and each participant was paid $1.50 after completing the experiment. Participants were restricted via Mturk to include only U.S. accounts and Mturk workers who had participated in 50 or less studies. This was to ensure that participants were not overly savvy to experimental deception and to reduce potential for suspicion. No demographic data was collected from the participants. A total of three results were removed from the study due to having completed the study in under one minute. This left 311 participants for data analysis. The six conditions had a slight uneven distribution. I originally wanted each of the six conditions to contain 50 participants. However, due to a minor coding error, the conditions were not perfectly balanced. Table 2 lists the number of participants in each condition.

TABLE 2: Number of participants per conditions

Condition	*n*
Partner reputation: Low Resources: Low	57
Partner reputation: None Resources: Low	52
Partner reputation: High Resources: Low	54
Partner reputation: Low Resources: High	53
Partner reputation: None Resources: High	49
Partner reputation: High Resources: High	46

Dependent Variable: Adopting a Trusted Third Party

Almost all the participants chose to adopt a trusted third party, regardless of their study condition. This was an unexpected finding, as I expected conditions with high reputation and low value to have a lower adoption rate than conditions with low reputation and high value. However, almost 95 percent of the participants, regardless of condition, selected a trusted third party. Table 3 outlines the number of participants who did and did not select the TTP per condition.

TABLE 3: Participants per condition on TTP adoption

	Conditions						
TTP Adoption	1	2	3	4	5	6	Total
No TTP	5	3	3	1	2	1	15
TTP	52	49	51	52	47	45	296
total	57	52	54	53	49	46	311

Hypothesis Test

Recall that hypothesis one states that as the value of the transaction increases, the likelihood of adopting a TTP increases. I tested this hypothesis using a Chi-square test comparing TTP adoption across the conditions of high and low transaction value. I choose a Chi-square because of the relatively low number of observations in each of the six categories for the experiment. By separating the transaction value into two conditions, high and low, I create two categorical variables, where the Chi-square is a powerful tool for analysis. Table 4 presents the Chi-square results for testing hypothesis one.

TABLE 4: Hypothesis 1 Chi-Square Test comparing TTP adoption across value

	Low value	High value	Total
TTP No	10	5	15
TTP Yes	150	146	296
Total	160	151	311
Pearson Chi2(1) = 1.4615		Pr = 0.227	Df: 1

I expected more participants to not adopt a TTP in the low value condition; However, TTP adoption was universal across high and low conditions, which caused hypothesis one to be

unsupported. Therefore, value had no effect on TTP adoption. The Chi-square test may have been significant if the choice to adopt a TTP was more difficult; However, the high rates of adoption demonstrate that it was an easy choice. Since perceived risk through value did not play a major role in causing widespread adoption, this infers that value may not have been the appropriate measure or properly manipulated.

Hypothesis two stated that as the reputation of an exchange partner decreases, the likelihood of adopting a TTP increases. Here, I also use a Chi-square test to measure TTP adoption against the three levels of reputation: low, none, and high. Table 5 demonstrates that there is no statistical significance between reputation scores and TTP adoption. Therefore, hypothesis two is also unsupported.

TABLE 5: Hypothesis 2 Chi-Square test between TTP adoption and reputation scores

	Low reputation	No reputation	High reputation	Total
TTP No	4	8	3	15
TTP Yes	103	101	92	296
Total	107	109	95	311
Pearson Chi2(2) = 2.3516		Pr = 0.309		Df: 2

Reputation is supposed to help inform actors on future behavior and expectations of their partners. While hypothesis two was also unsupported, given the high TTP adoption with no association to the manipulated variables of value and reputation, there seems to be an unobserved or unmeasured effect occurring in the experiment. Furthermore, similar to value, it is possible that the reputation manipulation was either incomplete or measured incorrectly. Since both hypotheses one and two were unsupported, I did not test hypotheses three and four because they were contingent upon finding support for the first two hypotheses. In the next section, I explore

potential effects to understand why the hypotheses were not supported and why the TTP adoption was so high despite no connection to the value or reputation variables.

Understanding Why the Hypotheses not Supported

To investigate why my hypotheses were not supported, I turned to questionnaire data to analyze different effects separate from the dependent and independent variables. Tables six through nine list different results from this analysis. Table 6 presents a frequency distribution of riskiness measured with a Likert scale by participants on how risky they considered the exchange with their partner to be (1 = not risky, 5 = very risky). I use this scale for several of the following tests.

TABLE 6: Participant's evaluation of riskiness in the exchange

Score	Freq.	Percent	Cumulative
1 = not risky	14	4.42	4.42
2	19	5.99	10.41
3	61	19.24	29.65
4	140	44.16	73.82
5 = very risky	83	26.18	100.00

The frequency table for risk indicates that close to three quarters of the participants believed the entire exchange involved higher levels of risk. The frequency of higher risk scores demonstrate that risk was present across the experiment, despite the lack of connection between risk and the manipulations. I use the high levels of self-reported risk to examine how risk differs among participants and how it affected other outcomes. Additionally, in the discussion section I return to considerations of risk and uncertainty and what may be driving high TTP adoption.

Both the literature and my theoretical argument indicate that reputation should influence risk perception, to this end, I examined if different partner reputation scores were linked to different levels of perceived risk. Table 7 presents the results of a T-test comparing riskiness and partner reputation score. The results indicated in Table 7 demonstrate a non-statistically significant finding of p=0.75, meaning that reputation had no effect on the perceived risk of the participant. This was an unexpected finding because reputation had little to no influence on either TTP adoption or risk, implying reputation had no effects across the entire experiment. Either reputation does not influence exchange, which is not supported by the literature, or my manipulation was incomplete.

TABLE 7: T-test between riskiness and reputation score

	Observation	Mean
Low/No rep	216	3.820 (0.694)
High rep	95	3.780 (0.110)
t = 0.317	Pr(|T| > |t|) = 0.751	Df = 309

Following the T-test between riskiness and reputation, I conducted another T-test comparing risk across levels of value (Table 8). Since value is associated with risk per Tversky and Kahneman's (1992) Prospect Theory—and in lieu of reputations influence on risk—I wanted to conduct a test to identify if risk was influenced by value to verify the literature and theoretical argument.

TABLE 8: T-test between riskiness and value

	Observation	Mean
Low value	160	3.790 (0.080)
High value	151	3.830 (0.086)
t = -0.343	Pr(|T| > |t|) = 0.7321	Df = 309

Interestingly, this T-test proved statistically insignificant as well (p=0.73). This was perplexing because the two T-tests indicate that neither variable and their manipulations affected the perception of risk or TTP adoption. However, there clearly was a strong trend of high TTP adoption and perception of risk in the experiment with potential exchanges. Neither of these outcomes can be associated with the value of the transaction or reputation, leaving the questions: Where did the risk come from and why was the adoption rate so high?

My next step was to examine the relationship between reputation and trustworthiness (Table 9). If there is no association with risk, then perhaps the participants level of TTP adoption is found in the trustworthiness ratings or lack thereof. Similar to the risk rating, participants reported how trustworthy they perceived their partner on a 1-5 scale, with a score of 1 being not trustworthy at all, and 5 being very trustworthy.

TABLE 9: T-test between trustworthiness and reputation score

Group	Obs.	Mean
No/Low star	216	3.890 (0.067)
High star	95	3.947 (0.095)
t = -0.489	Pr(|T| > |t|) = 0.626	Df = 309

Curiously, there was no statistical significance (p=0.62) indicating that reputation score had no effect on trustworthiness. Therefore, the overall analysis reveals reputation had no influence on TTP adoption, risk, or trustworthiness. This informs me that reputation had a complete (or near complete) breakdown of all its intended effects. Suggesting that either reputation has little to no role to play in exchange—which the literature does not support—or the manipulation was wrong or incomplete. I investigate potential reasons for this in the discussion section.

Exploratory Analysis

With the exploratory analysis, I sought to understand if there were any identifiable trends occurring in the experiment that would help explain the universally high TTP adoption separate from the experiment's manipulations. I begin my exploratory analysis with a logistic regression predicting TTP adoption (1 = yes) from the self-reported level of risk that the participant assigned to the exchange. See Table 10.

TABLE 10: Logistic regression between TTP adoption and perceived riskiness scores

Log Pseudolikelihood	-53.065
# of observations	311
Prob > Chi2	0.0004
TTP adoption	
Risky	Odds ratio: 2.30 (0.538) Z = 3.56 P = 0.000***
Constant	Odds ratio: 1.217 (0.864) Z = 0.28 P = 0.782

The logistic regression reveals that risk perception, unassociated with reputation or value, has a statistically significant relationship ($p< 0.001$) with TTP adoption. While it is clear and important to identify the association between risk and TTP adoption—which is in line with the theoretical argument—this does not inform where the risk originated from. All we know is that with higher levels of risk, there are higher levels of TTP adoption, which supports the overall theoretical argument.

In a similar approach, I use another logistic regression to test the effects of self-reported partner trustworthiness on TTP adoption. Although earlier tests revealed trustworthiness had no statistically significant association with reputation (a minimum in this experiment), I wanted to explore if trustworthiness itself would influence the adoption of a TTP or not. My theoretical construction argues that if trust exists there should be lower levels of TTP adoption and the anticipated negotiated exchange would be honored rather than assured. I present the analysis results of trust and TTP adoption in Table 11.

TABLE 11: Logistic regression between TTP adoption and perceived trustworthiness

Log Pseudolikelihood	-59.648827
# of Observations	311
Prob > Chi2	0.3861
TTP adoption	
Risky	Odds ratio: 1.284 (0.370) Z = 0.87 P = 0.386
Constant	Odds ratio: 7.650 (8.343) Z = 1.87 P = 0.062

The logistic regression reveals that trustworthiness, unlike risk, is statistically insignificant (p=0.39), meaning it has no effect on TTP adoption and indicates that while trust was present and reported by participants, it did not prevent TTP adoption. While this was evident on the surface with the TTP adoption rate, the analysis outlines that risk outweighed trust in driving behavioral decisions. The strong support for risk influencing an exchange matched with evidence that risk outweighs trust, suggests that initial exchange may revolve less around trusting partners and revolve more around risk mitigation.

In my last test, I use linear regression to examine the relationship between perceived level of risk and participants' preference for selecting a new potential exchange partner. Preference for a new partner was measured using a single questionnaire item asking participants to report the extent to which they agreed with the statement "If I had the option to choose a different exchange partner, I would". Response ranged from 1 = strongly disagree to 5 = strongly agree, with a mean of 3.85. While the experiment focused on TTP adoption to provide assurance to an exchange in lieu of trusting an exchange partner, the results have uncovered that risk was the driving factor for adoption. It should follow then, that if—or when—risk is too high, participants should want *any* mechanism to alter the exchange. By evaluating the risk level and opting for a new partner—if it were possible—I should get a statistically significant finding in line with the high TTP adoption rate. Table 12 presents the results of my linear regression analysis.

TABLE 12: Linear regression of risk and desire to choose a new partner

Intercept	2.062 (0.204) T = 10.087 P = 0.0***
Choose Different partner	0.456 (0.051) T = 8.81 P = 0.0***

The regression results provide a statistically significant finding (p=0.0***) that risk relates to desiring a different partner. As such, actors are inclined to search for different mechanisms to change a risky exchange. This offers several potential options for future research, where the specific mechanism for risk reduction may be less important than simply having any option for mitigation.

In summary, while the hypotheses were not supported, there is a clear trend for high levels of risk and TTP adoption. Although additional analysis identifies that risk is present and influential, there is no clear answer for how or why the risk is present because it is separate from the independent variables. In the next section, I discuss why the experiment did not find the expected results and the potential reasons for this.

DISCUSSION

The main objective of this thesis was to determine initial exchange success by identifying if the value of a transaction and reputation of exchange partner would influence actors' reliance on trust or assurance. Based on my theoretical construction, I sought to evaluate if, or when, an individual would trust their partner to carry out and uphold their end of a negotiated exchange. Alternatively, I argued that when a participant did not trust their partner, they would find a way

to reduce the perceived risk (i.e., choose a TTP to provide assurance to the exchange). Adopting a mechanism that provides assurance should have indicated which conditions the participants did and did not trust their partners. However, given no statistically significant findings for the value of the transaction or reputation affecting the adoption of a TTP, my experimental results did not support my hypothesis and the research question was not answered.

While the hypotheses were not supported, there is an identifiable trend of TTP adoption across all conditions. Whether the decision is a result of risk, uncertainty, or another unknown and unmeasured effect, the large percentage of TTP adoption clearly indicates that *something* occurred which influenced expected exchanges. From a theoretical perspective the results suggest a decision-making process *before* entering a negotiated exchange. This suggests that the previous notion that the risk of giving without reciprocity (Molm 2000), may also apply to negotiated exchange. These two concepts require support and research for validation; However, they reinforce ideas that negotiated exchanges involve factors prior to negotiation and that risk of potential reciprocity can exist in negotiated exchanges.

Tests between reputation with TTP adoption, risk and trust all proved statistically insignificant. Therefore, the analysis of reputation indicates no effects at all, and a potential breakdown of the entire reputation system. Similarly, the Chi-square test examining the relationship between transaction value and TTP adoption proved non-significant. The exploratory analysis included a T-test examining if value affected perception of risk and the results revealed no connection. Just like with reputation, transaction value had no effects in the experiment, which is counter to what I expected given previous findings from Prospect Theory. However, in the exploratory analysis, there is a statistically significant connection between TTP adoption and participants' rated level of riskiness. The exploratory analysis also uncovers that the

high levels of risk indicate participants would choose a new trading partner if possible. If risk is present, but not connected to the manipulations; Then where did the overwhelming amount of risk—and associated TTP adoption—come from and what went wrong in the experiment?

After conducting the exploratory analysis, I reviewed my theoretical argument and found several arguments may need substantial revision. These theoretical revisions point to several ways in which further tests of initial exchange would require revised methods as well. First, my initial formulation used Thye's (2000) concept of status value, along with Granovetter (1985) to explain the assignment of value and the spread of trust. However, Thye's (2000) work only functions with status characteristics and Granovetter's process applies to reputation. In essence, my model conflates status and reputation, which function in very different ways. The theoretical foundation that the spread of status value would apply to the spread of trust via reputation was unfounded. Furthermore, Thye's (2000) work on the value of resources created an implicit assumption that the participant would assign value to the resource system. However, due to the use of reputation, as opposed to status characteristics, it is possible the value system was left undefined. The theoretical issues with reputation and value ultimately led to methodological issues.

The theoretical argument connecting value to risk led to potential methodological issues in two ways: First, it seems the participants could not assign a value to the resource system in use. Second, in lieu of status value determination, I did not create an anchor or reference for the value of the resources (points and jewels) in the experiment. Since uncertainty is present in negotiated exchanges when the value of the resources is unknown (Molm 2009), the lack of an anchor-point or frame of reference for the resource system to give value could have influenced the perception of receiving fair value, triggering a risk response. The value manipulation I

employed relied on an implicit assumption from Thye's (2000) work on status value, where the participant would assign value to the points and jewels available for exchange. However, the experiment used reputation, not status characteristics, which means that the status mechanisms for creating value were absent. This in turn, could develop a situation where the participant did not understand the value of their points and could not develop a concept of how to trade for fair value.

At a minimum, the inability for participants to accurately assess the value of their resources may have jeopardized my arguments by failing to instantiate the conditions necessary for assumption 1 and 2, throwing the entire argument in disarray. Additionally, the inability to receive fair value could have triggered an overestimation for the chance of fraud or creating a loss aversion response. However, participants strongly indicated that they believed their partners would send the full amount agreed on in negotiations, which likely rules out overestimation of fraudulent exchanges. Additionally, while participants indicated that if their exchange failed, they believed they would lose too many points, there is no significant findings that support a connection between value of the transaction and risk, which limits the plausibility of loss aversion reactions. Since there was no measurement for understanding the value of the transaction, the most plausible answer is that the resource value was uncertain—creating risk—and would require future research to validate.

Another theoretical hiccup that led to potential methodological issues was the unintentional exclusion of any background on when or how a reputation emerges or becomes functional. This caused me to overlook any explanation for *when* reputation is appropriate to use for implying or interpreting future behavior. Consequently, the theoretical argument created had an implicit assumption that the reputation was already solidified rather than emerging. For

example, most reputation systems include both the score and number of reviewers that give its aggregate. The number of previous reviewers on the profiles (with a score) was not included for both programming reasons and the short duration of the reputation involved. As a result, the experiment just included the raw reputation score, creating an incomplete or ineffective reputation system. Therefore, without the number of reviews attached to a reputation score, it is possible the reputation's increased uncertainty due to being underdeveloped, creating incomplete information rather than more complete information. This in turn could affect information asymmetries, causing a breakdown of reputation effects and potentially explaining the lack of connection between the reputation score and TTP adoption, trust, and risk. Lastly, my theoretical argument for reputation also combined the spread of status value (Thye 2000) and Granovetters (1985) spread of trust via reputation. Combining these two features, without status present—and reputation not formed—means that there was no mechanism in place for trust to exist in the exchange to begin with.

The combination of these factors suggests that the high levels of TTP adoption may be due to high levels of risk represented by uncertainty being injected into the experiment. Since risk cannot be attributed to either the value or reputation scores, then the evidence points to an unmeasured condition of uncertainty created by unknown resource value and incomplete reputation systems that inadvertently became present. Future research is necessary to provide support, but it seems that reducing uncertainty in an exchange is the most critical aspect of establishing an initial exchange.

Another consideration, unrelated to the theoretical arguments, is that I did not collect any data on participants belief in the two-phase construct of the game. This could have influenced the participants belief (and subsequent certainty) in the value system and the necessity of exchanging

points and jewels for maximum effect in the game. Furthermore, the entire setup of the experiment pointed out the opportunity for fraud. Unlike most interactions online, which minimize references to fraudulent action, this priming effect could have influenced the participants to be on their guard about the entire exchange process as opposed to having a more natural exchange. Lastly, the dependent variable was dichotomous, either adopting a TTP or not. Rather than focusing on the adoption, the dependent variable may have been more effective if the dependent variable adoption had varying costs as opposed to the flat three percent fee. The use of assurance mechanisms in everyday life varies in part to the cost of employment. If a risk mitigation mechanism was possible for all interactions at very low or zero cost, then they may be much more widespread. Varying the cost of adoption to measure different barriers to entry could have given more insight to when a person accepts a risky situation and relies on trusting their partner versus assuring the exchange.

Despite the shortcomings, approaching the concept of initial exchange from a status or reputation perspective could still provide valuable insight. Reputation arguments should include additional background on reputation systems, effects, emergence, and solidification. The methods section should reflect either an emerging or fully formed reputation score and system. Furthermore, if an initial exchange involves only reputation, it is critical that an established value system is used. Value could be established externally, referenced by real currencies, or established internally with an anchor point. Regardless of the mechanism used, the value needs to be known so that participants understand what they are exchanging and can access fair value.

Limitations

While the ideal method for conducting this experiment would have been in a laboratory setting, due to the constraints of Covid-19 and the lack of a research budget, my experiment was

limited to being conducted online. The lack of a budget required the use of Mturk rather than more expensive crowdsourcing platforms such as Profilic.com. Furthermore, creating and coding my own website prevented the inclusion of a critical aspect in the methods; Specifically, the number of reviews a profile had to form a more complete reputation score.

FUTURE RESEARCH

Any follow-up research should include a replication of the current work with theoretical and methodological revisions. Revisions should include in person laboratory tests and a simultaneous online vignette as a comparison. Both components should include a qualitative portion in the form of an exit interview to provide better insight on uncertainty, risk, and trust. Adjusting the theoretical and methods as addressed in the discussion section to separate reputation and status and include a known value system, could answer the questions about uncertainty on initial exchange. Furthermore, the revisions could help increase understanding on negotiated exchange factors that occur prior to the exchange and the risk of reciprocity that may be present in negotiated exchanges.

Separating reputation and status and conducting further research on status characteristics in initial exchange also holds promise.

Status has the potential to inform future behavior and if there is incomplete information about a trading partner, then status may be a better metric than reputation for initial exchange. If this holds true, and status fills informational gaps for initial exchange then this could indicate that higher status equates to higher trust.

Lastly, further manipulation of the dependent variable as a barrier to entry for TTP adoption could provide valuable insight on when an actor accepts or trusts their partner. This would evaluate when barriers of entry force someone—perhaps from a standpoint of desperation

to complete an exchange—to trust another person. If the dependent variable is the cost of adoption rather than adoption itself, then it may be possible that people assume a higher level of acceptable risk. The overall concept is that if the costs of assurance are very cheap, or even free, then almost everyone should choose to adopt it. The flip side of this argument is that someone would not want assurance in an exchange *if* they wanted to behave fraudulently.

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APPENDIX A: Website Instructions:

Website Link: https://sites.google.com/uncc.edu/virtual-exchange/

MTurk blurb You will log onto a secure, third party simulated online market, like craigslist or eBay with a unique account and username and specific instructions to review your trading partner's profile. After logging on, expect to complete anywhere from three to five exchanges over the next 30 minutes. *End Mturk blurb*

Experiment website:

Page 1: Virtual Exchange

"At the conclusion of this study, you will receive a unique code. You must paste this code into Amazon Mturk to receive payment."

Page 2: Consent

Principal Investigator: Patrick Franck, UNC Charlotte MA candidate in Sociology

Faculty Supervisor: Joseph Dippong, Associate Professor of Sociology, UNC Charlotte

You are invited to participate in a research study. Participation in this research study is voluntary. The information provided is to help you decide whether or not to participate. If you have any questions, please contact the principal investigator (pfranck@uncc.edu) or faculty advisor (jdippong@uncc.edu). For questions about your rights as research participants, or wish to obtain information, ask questions or discuss concerns about this study with someone other than the researcher(s), please contact the Office of Research Protections and Integrity at +1-704-687-1871 or email uncc-irb@uncc.edu.

<u>Important Information You Need to Know</u>

The purpose of this study is to examine how and why people exchange resources with certain partners. Video games represent a common exchange format, and with increasing e-commerce this is a relevant manner to examine how people view exchange in an online format.

We are asking anyone aged 18 and older who speaks English to complete a survey about exchange(s) they have prior to playing a five-minute survival video game.

This study is open to the first 330 volunteers who complete the participation requirements.

Please read this form and ask any questions before deciding to participant in this research study.

Please be aware that if you choose to participate in this study, that we will be withholding certain information from you that is related to our study design, and that you will not be informed about the purposes of this research. If you are not comfortable with having some information withheld from you, you should not agree to participate in this study.

What will happen if I take part in this study?

If you choose to participate, you will be provided with instructions on how to complete a series of exchanges with a partner. You will then be matched with a partner in our online exchange platform. After receiving information about your partner, you will be asked to complete a brief questionnaire. Before moving to the exchange round, we will ask you to make some decisions regarding how you would like the exchange to proceed.

What Benefits might I experience?

You will not benefit directly from participating in this study.

What risks might I experience?

We do not expect that you will experience any risks beyond that which you would encounter in everyday life.

How will my information be used after the study is over?

After this study is completed, study data may be shared with other researchers for use in other studies or as needed as part of publishing our results. The data we share will NOT include information that can identify you.

Will I be paid for participating in this study?

If you choose to participate and complete the entire study, which should take no more than 15 minutes, you will receive $1.50.

What are my rights if I take part in the study?

It is up to everyone in the participant pool to determine if they want to partake in the study. Participation is voluntary. Even if participating, you may change your mind and stop at any time.

Who can answer questions about this study and my rights?

For questions on the research, contact the principal investigator Patrick Franck (pfranck@uncc.edu) or the faculty advisor Joseph Dippong (jdippong@uncc.edu).

For questions about your rights as a research participant, or to discuss concerns about the study to someone other than the investigator and faculty advisor, please contact the Office of Research Protections and Integrity at +1-704-687-1871 or email uncc-irb@uncc.edu.

Consent to participate

You received this consent form by clicking on the study's advertisement on Prolific.com. Make sure that you understand the study design and intent before agreeing to participate. If you have any questions about the study after your provide consent, you may contact the team or IRB with the information provided above.

Please select one of the following options:

- **I understand the studies intent and my questions have been answered. I am at least 18 years old and I agree to take part in this study.**
- **I do not agree to participate in this study.**

Page 3: Instruction:

Hello, thank you for agreeing to participate in this study. This study will consist of two parts.

In phase one you will exchange resources with a partner. These resources will have value to you in part two. In phase two of the study you will play a five minute, 2-D, browser-based, flash game where you will use the resources from phase one.

PHASE ONE: you will be given points or jewels and trade with a partner who has the opposite resource of what you have. Those points and jewels have use in the game in phase two.

PHASE TWO: Play a game and use your exchanged resources for best performance.

In the following sections you will review a basic profile of your exchange partner and answer some preliminary questions about your partner and expectations for the exchange, before trade occurs. After the questions, you will exchange with your partner for points or jewels that can be used in the phase two in a 2D flash game (browser supported). The purpose is to play for up to

five minutes, the points and jewels are used for items, upgrades, and attributes. The easiest way to ensure higher performance in the game is to have a combination of points and jewels. After the study is completed, you will receive a code for Amazon Mturk payment.

Page 4: Instructions

Before you begin phase one, you will review your trading partner's profile. You will start with the baseline level of points or jewels. You will be randomly matched with a partner to complete an exchange. Your partner will have corresponding jewels or points. Your goal is to get as many resources as possible while giving up as few as possible. Having more of both resources will help in Phase Two. You must complete at least one round of exchange before phase two can begin. After the round of exchange, you will be able to provide feedback about the quality of your exchange partner. If you choose to, you will be able to exchange up to five times, each time with a different person. One round of exchange is required before entering phase two.

Before the opportunity to exchange occurs you will be provided with a brief profile of the exchange partner with whom you have been matched. Each person in this study, including yourself, will have a profile attached to them for review. This profile indicates the number of resources available for exchange and each persons ratings on a five star scale. Five stars for the highest positive review and one star for lowest review.

Anyone who has not previously exchanged will have a star score of zero, and their profile will indicate that they have not been rated yet. Only people who have not exchanged yet will have zero stars. Anyone who has completed at least one round of exchange will have a profile that displays the average rating score. The lowest possible score after one exchange is one star. The highest possible score after one exchange is five stars.

Page 5: instructions

Ok! You're just about ready to get started.

On the following page, you will view the profile of your first matched exchange partner. Please take a moment to review that profile before continuing to the exchange platform. In order to help us understand how people make decisions about exchange and to ensure you've paid attention to your partners profile, we will ask you a few questions about your exchange partner. After the questions you will be directed to the exchange platform. After completing the exchange you will receive instructions on how to begin phase two and access the game.

As you review your partners profile, please be aware that during the exchange you and your partner will agree to exchange resources. Neither of you will be matched with each other again for potential future exchange. Please note that while the exchange process will allow you and your partner to reach an agreement on how many resources you will send them, and they will send you, there is no obligation on either party to honor the agreement. For example, if you agree to send your partner 10 points, you may subsequently send them eight points instead. Whether or not you honor your agreement will likely effect how your partner rates you after the exchange.

On the next page you will review the profile of a randomly matched partner.

Page 6: Profile review

You have been matched with the following exchange partner:

APPENDIX B: Questionnaire

Part 1:

1) Would you like to use our Trusted Third Party service? Again, this service will ensure: a) that your exchange partner provides you with the full amount that the two of you agree on to complete the exchange, and b) that you provide your exchange partner with the full amount that the two of you agree on to complete the exchange. If you do not opt into the Trusted Third Party service before your first exchange, you will not be able to opt in later.

Please select one:

1) Yes, I want the TTP service
2) No, I do not want the TTP service, and I understand that I cannot opt in later

Part 2:

Based on the expectations and thoughts you had surrounding the exchange and your partner please answer the following.

Instructions: on a scale of 1-5, indicate how much you agree with the following statements. With 1 being strongly disagree, and 5 strongly agreeing.

1. Exchanging with my assigned partner seems risky
2. The cost of the TTP was too high
3. My trading partner does not seem likely to follow through on their end of the deal
4. If the exchange failed, I would lose too many points
5. When my partner agrees to an exchange, they will send the full amount
6. The chance of losing points seems low
7. The number of points I have for trading influenced my decision on adopting a TTP
8. The reputation of my trading partner influenced my decision on adopting a TTP
9. My trading partner seems trustworthy
10. My partner's reputation/ rating led me to trust them
11. If I had the option to choose a different exchange partner, I would
12. If given the option to exchange in a system where deception is not possible, I would take it
13. I want assurance that my exchange is guaranteed

On a scale of 1-9, rate yourself and your trading partner on the following

1. For this exchange you perceive yourself to be good or bad, with 1 being bad and 9 being good
2. For this exchange you perceive yourself to be powerful or weak with 1 being weak, 9 being powerful
3. For this exchange you perceive yourself to be lively or quiet with 1 being quiet and 9 being lively
4. You perceive your partner to be good or bad with 1 being bad, 9 being good

5. You perceive your trading partner to be powerful or weak, with 1 being weak, 9 being powerful
6. You perceive your trading partner to be lively or quiet with 1 being quiet, 9 being lively

APPENDIX C: Participant Debrief

Thank you for participating in our experiment. As part of the informed consent process, this debrief explains why certain actions were used for the experiment. The lack of actual exchange and the opportunity to play the video game for five minutes of survival were decided for a variety of reasons. First and foremost, the experiment's intent is to gauge initial exchange conditions and how individuals perceive a potential trading partner. As describe in the study outline, the frequency of one-time exchanges with new partners is a growing phenomenon with online communities and e-commerce. This investigation was focused on evaluating and understanding participants expectations and beliefs going into the exchange rather than evaluating the actual exchange. Simulating the thought process and perceptions of participants before an exchange begins is crucial to understanding the initial conditions of why, or how people choose to exchange with a new person. By creating a situation in which people believe they would exchange multiple times, each time with a new partner, provides a chance to measure how individuals would approach each exchange. To this end, participants should have been placed in a mental state in which they considered the exchange to be real, and that it was beneficial for both parties to exchange. By creating this conditions, we believe that the survey results reflect the same results had participants actually exchanged and played the video game. This study has a total of six conditions. First, a high and low value of the number of points they would be able to exchange with. This represents the amount of 'risk' a participant would have by placing a certain of points available for trade. The risk is the number of points they must 'put on the table' to exchange with a partner. The uncertainty of whether this exchange would be legitimate, i.e., that their partner would not act frequently or in bad faith is represented by three separate conditions of reputation through the starred rating system. The three conditions for uncertainty were included participants being randomly selected to 'exchange' with a low starred partner, a partner of neutral or equal stars (both partners start with zero stars, by trading with a brand-new partner, both sides were equal because neither had any reviews). The last condition was being randomly matched with a trading partner profile that had a high starred review. Depending on the conditions, this study intends to determine if individuals are more likely to trust a trading partner based on the level of risk and amount of uncertainty. The choice to adopt a trusted third party to ensure the exchange is the dependent variable that the principal investigator will use to measure the threshold of trust in face of risk and uncertainty.

If you have any concerns about this study, you may contact the principal investigator Patrick Franck at pfranck@uncc.edu. Alternatively you may contact the faculty advisor, Joseph Dippong at jdippong@uncc.edu. If you have concerns and do not want to contact the research team, you may contact the Office of Research Protections and Integrity at +1-704-687-1871 or email unccirb@uncc.edu.

APPENDIX D: Debrief for participants who withheld consent

For non-participants

Thank you for your interest in our study. Have a wonderful day! Please exit this website at your convenience.

If you have any concerns about this study, you may contact the principal investigator Patrick Franck at pfranck@uncc.edu. Alternatively you may contact the faculty advisor, Joseph Dippong at jdippong@uncc.edu. If you have concerns and do not want to contact the research team, you may contact the Office of Research Protections and Integrity at +1-704-687-1871 or email uncc-irb@uncc.edu.