CONSIDER THE SOURCE: AN INVESTIGATION INTO PSYCHOLOGICAL CONTRACT FORMATION

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Abstract

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Researchers investigating the psychological contract in employment relationships have primarily focused on employee and work outcomes that are the result of psychological contract breach and/or psychological contract violation. However, little empirical research has been done investigating the psychological contract formation process. The current study investigated the psychological contract of individuals in the department-participant relationship of a university experimental research program. Specifically, the study assumed that research participants do hold psychological contracts regarding the department-participant relationship. When forming these contracts, participants incorporated information from sources other than the department in their psychological contracts 32% of the time. Additionally, when asked to identify the source of these obligations, 30% of the time participants identified non-departmental items as having been presented by the department; thus, there is evidence that participants make source misattributions. Finally, implications for the work context and future directions for research are discussed.

Approved:

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Introduction

The psychological contract is a reciprocal exchange agreement between employee and employer regarding each party’s obligations in the employment relationship. The importance of understanding the psychological contract is highlighted by the many research findings relating violations of psychological contracts to various employee outcomes, including an increase in intentions to quit (e.g. Rousseau & Robinson, 1994; Turnley & Feldman, 2000), decrease in organizational citizenship behaviors (e.g. Coyle-Shapiro, 2002; Turnley, Bolino, Lester, & Blood-good, 2002; Robinson & Morrison, 1995), and increase in deviant work behaviors (Kickul, 2001). Though recent research investigating this construct has focused on employee and work outcomes such as these, little is known about the psychological contract formation process.

When discussing psychological contract formation, researchers tend to agree that early experiences between the employee and employer play a significant role in determining the elements that are included in the psychological contract (Kotter, 1973; Morrison & Robinson, 1997; Rousseau, 2001). In addition to information provided by the new organization, researchers suggest that initial forms of the psychological contract are based on individual experiences, and beliefs, as well as information provided by other sources such as coworkers (Rousseau, 1995). Examining the use of information from sources other than the new employer in the formation of a new psychological contract may help researchers to better understand psychological contract formation and play a particularly important role in understanding the occurrence of psychological contract violation.
Prompted by Rousseau’s (2001) call for further investigation into psychological contract formation, the present study seeks to investigate the role of experiences outside direct interactions between organization and new member on the formation of a new psychological contract and problems that may arise in doing so. More specifically, the study will consider conditions under which information provided by peers is incorporated into a new employee’s psychological contract, and if employees are able to accurately identify the source of promised obligations. The study will consider if employees knowingly incorporate peer information into the psychological contract or if they come to believe the peer information was actually promised by the new employer. Finally, the study will determine if incorporating such information into the psychological contract leads to reports of psychological contract breach and violation.

The investigation begins with a review the history of the psychological contract in the industrial/organizational (I/O) psychology and organizational behavior (OB) literature. Next, studies that investigated the employee and work outcomes associated with psychological contract violation and forms of violation are reviewed, followed by a review of the limited research on the psychological contract formation process. I then review the memory literature on source misattribution in order to consider potential problems that might occur during the formation process. Finally, a study is proposed that considers the use of peer information in forming a new psychological contract, memory for this information, and resulting psychological contract violations.
A History of the Construct

An essential assumption underlying much of I/O literature is that individuals have expectations regarding future events (Campbell & Pritchard, 1976). It is this assumption that underlies the organizational entry literature. That is, organizations have expectations regarding the abilities of new employees and their performance on the job and new employees have expectations regarding those things the employer will provide to meet their personal needs (Wanous, 1977). Wanous has been particularly influential in developing psychological theory and empirical research on individuals’ expectations when joining organizations. Wanous posits that individuals enter organizations with a sometimes unrealistic set of expectations. Though some of these expectations may become the basis of the psychological contract, more recently researchers (Rousseau, 1995; Taylor & Tekleab, 2005) have sought to distinguish psychological contract obligations from initial expectations.

When applying for and accepting a position with an organization, applicants develop beliefs regarding the requirements of the job they will perform and the role they will play in a given organization. For example, an employee hired as a sales manager might expect responsibility for managing a sales team, developing incentive plans, monitoring the product market and product performance in that market. Among many other duties outlined in the job description, one may also expect that the role of sales manager requires setting an example for the sales representatives through mentoring and displaying a sense of loyalty to the organization, as well as, learning about the organization’s product and sharing product knowledge.
In addition to the employee’s beliefs regarding what the position of sales manager will require of them, they will also have beliefs of what the company will provide for them in return for their services. For example, a sales manager might expect a base salary and a bonus based on his or her team’s performance, as well as a benefits package including such things as medical benefits and a retirement plan. As sales manager, the employee might also expect to play a role in the organization’s decision-making process and might expect the company to provide job security, training, and advancement opportunities. When employees believe these expectations have been promised to them in an exchange agreement by the organization, they become the basis of the psychological contract.

Throughout the last 40 years, researchers have varied in the details of their definitions of the psychological contract. Investigation into the history of the construct has traced early development of the construct to Barnard’s (1938) theory of equilibrium, which described an exchange perspective of employee participation within an organization and March and Simon’s (1958) work, which described unwritten contractual obligations between employees and organizations (Roehling, 1997). The nature of the construct as a contractual obligation is one of the elements that distinguish psychological contract obligations from general expectations (Roehling, 1997; Sutton & Griffin, 2004).

The actual term “psychological work contract” is credited to Argyris’ 1962 work, *Understanding Organizational Behavior*, where he described an implicit understanding between a group of employees and their foreman that the employees would remain productive as long as the foreman respected the norms of their culture as a psychological work contract. In addition, Argyris suggested that violation of this contract occurred
when the foremen were forced to implement changes which invaded the employee culture (i.e. decreased their control).

After Argyris’ (1962) discussion of the psychological work contract, a number of researchers developed their own perspectives on the contractual agreement between employees and employers. Levinson, Price, Munden, Mandl, and Solley (1962) described a mainly implicit psychological contract of mutual expectations between person and company and went on to identify different types of expectations. From the employees perspective these expectations included such things as employee development, job security, and economic rewards whereas the expectations held by the employer included such things as an emphasis on efficiency and expenditures as well as performing good citizen behaviors. Levinson et al. described these expectations as obligations in that employees believed that it was the duty of the organization to fulfill these obligations.

Schein (1965; 1980) developed the construct further, taking the perspective that psychological contracts are unwritten and informal. Schein (1965) also suggested that psychological contracts include not only expectations, but “…involve the whole pattern of rights, privileges, and obligations between worker and organizations…[and] operate powerfully as determinants of behavior” (p11). Subsequently, Schein (1980) suggested these expectations or obligations can arise from a variety of sources (e.g. needs, traditions and norms, or past experiences). A key element to Schein’s theory of psychological contracts is that they are dynamic. That is, the psychological contract develops over time through interaction between the employee and employer moving from initial organizational entry stages through early socialization.
Still others have suggested variations on the explanation of the construct developed by Argyris (1962) and Schein (1965; 1980). Kotter (1973) discussed the psychological contract as a matching of expectations, where matched expectations lead to higher employee satisfaction and less turnover and Portwood and Miller (1976) described the implicit agreement called the psychological contract as one that was “negotiated between employee and employer” at the time of entry.

Recently, the advancement of research on psychological contracts has been credited to Rousseau. Rousseau (1989; 1995) developed the psychological contract beyond that of the work of Argyris’ (1962) and Schein (1980) by defining the psychological contract as promissory exchange agreement of reciprocal obligation. Although Rousseau’s theory distinguishes her definition of the psychological contract from others by emphasizing the promissory and reciprocal aspects of the contract, others have suggested that these aspects are inherent in past theories (Taylor & Tekleab, 2004). According to Rousseau (1995) obligations of the two parties are the basis for the beliefs that constitute the psychological contract. Not all expectations the employee has of the employer are incorporated into the psychological contract. It is only the expectations that the employee believes have been promised (implicitly or explicitly) by the employer that are elements of the psychological contract (Robinson, 1996).

Additionally, Rousseau’s theory of psychological contracts tends to focus on the contract as individual’s belief system, mainly in terms of the employee’s beliefs regarding the obligations of the organization. Critiques of Rousseau’s work (e.g. Herriot & Pemberton, 1997) highlight the importance of understanding both the psychological contract of the employee and the organization (or organizational agent) in accordance
with Schein’s (1980) perspective that to fully understand the construct, one must take into account both perspectives. In addition to refining the definition of the psychological contract as a promised obligation, Rousseau has also been credited with developing further the theory on the contractual nature of the construct by presenting a categorization on contract types and two types of obligations.

*Types of Contracts and Distinctions Between Obligations*

The *Webster’s Encyclopedic Unabridged Dictionary* (1996) defines a contract as “an agreement between two or more parties for the doing or not doing of something specified (p.441).” Contracts play a large role in any employment relationship and thus, analysis of the employment relationship (Honeyball, 1989 as cited in Roehling, 2005). However, analysis of contracts in the employment relationship may be difficult by the subjectivity of contracts. “Subjectivity is inherent in all contracts,” (Rousseau, 1989, p. 121). In an attempt to further understand the contract in the employment relationship, Rousseau (1995) presented four distinct types of contracts: 1.) social contract, 2.) implied contracts, 3.) normative contracts, and 4.) psychological contracts.

Social contracts, as described by Rousseau (1995) are based on the values and shared beliefs of a society. Social contracts encompass obligations based on norms. For example, the norm of reciprocity, whereby individuals in a group believe that if they are helped by someone they should in turn repay that help. This is often referred to as *good faith* from a business perspective. Such contracts are not promise-based, yet they aide in the interpretation of promises. Whereas social contracts are based on broad beliefs of a society, normative contracts are also shared contracts; however, normative contracts
develop as collective beliefs of a group, team, or organization. Termed the *shared* psychological contact (Rousseau), normative contracts can evolve at many different levels of an organization. For example, employees may hold common beliefs regarding their obligations based on a department classification (e.g., accounting, sales, customer service), work status (part-time, full-time) or employment status (exempt, non-exempt).

Though social contracts and normative contracts involve the shared beliefs of a group, implied and psychological contracts are individually held (Rousseau, 1995). Implied contracts are contracts as interpreted by a third party. That is, the attributions that individuals not involved in the relationship (e.g., customers, courts, or any third party) make regarding the commitment between the two parties. Finally, psychological contracts are beliefs held by individuals regarding the exchange of obligations between themselves and their organization. It is the formation of this individual belief system that the current study intends to investigate.

Rousseau (1995) further distinguishes between the two types of elements within the psychological contract, based on MacNeil’s (1985) relational contract theory from the law literature. Rousseau suggests that contractual elements can be transactional or relational. Transactional elements are more clearly defined than relational elements. They include more tangible elements such as pay and benefits, whereas relational elements are considered to be more open-ended such as loyalty and job security.

Since Rousseau’s work outlining psychological contract theory, researchers have mainly focused on the occurrence of psychological contract violations and their consequences (e.g. Morrison & Robinson, 1997). As outlined below, such violations can occur for a number of reasons, and can have negative effects for both employee and
employer. However, the road to understanding and reducing the occurrence of such violations may lie in a better understanding of the psychological contract formation process.

*Psychological Contract Fulfillment and Violation*

In the simplest sense, expectancy theories of motivation posit that individuals have expectations regarding the outcomes of specific choices or actions. Individuals weigh these outcomes in terms of their value to the individual and choose to participate in those activities that will be the most beneficial (Campbell & Pritchard, 1976; Porter & Lawler, 1968; Vroom, 1964). Thus, one body of literature that attempts to understand the expectations employees hold regarding the benefits of working within an organization focuses on met expectations. Research in the area of met expectations has been the focus of various researchers in I/O psychology and O/B for almost 60 years.

Porter and Steers (1973), in their review of factors influencing employee turnover and absenteeism defined met expectations as “the discrepancy between what a person encounters on this job in the way of positive and negative experiences and what he expected to encounter” (p. 152). Additionally, they define job satisfaction as “the sum total of an individual’s met expectations on the job” (p. 169); thus, meeting one’s expectations on the job should result in higher levels of job satisfaction. Additionally, unmet expectations have been found to reduce job satisfaction, commitment, and performance, and to increase turnover (Wanous et al. 1992).

Since the emergence of literature surrounding met expectations, a great deal of literature has focused on reducing the discrepancies between what newcomers expect and
the realities of the job. It is well accepted in OB literature that applicants tend to have unrealistic or inflated expectations regarding a new job or organization (Wanous, 1977). Realistic job previews (RJP’s) have been used as a means of clarifying communication between employer and newcomer in order to improve the fit between the expectations of the individual and the work environment (Porter & Steers, 1973; Wanous, 1977).

Popovich and Wanous (1982) integrated the persuasive communication literature from social psychology into RJP theory; suggesting that the use of such a perspective will increase the effectiveness of the RJP. As part of their argument, Popovich and Wanous focused on the credibility of the source presenting information to newcomers. Based on theory on attitude change, the authors suggest that source credibility can increase the persuasiveness of a source. Yet, source credibility has not been fully investigated in RJP theory. Similarly, researchers have given little attention to source credibility in psychological contract formation.

Thus, it can be beneficial to consider perspectives from the RJP research in investigating psychological contract formation. However, as presented previously, an important distinction between the expectations a newcomer has and the obligations within the psychological contract is the reciprocal promissory nature of the contract. Though this distinction between expectations and psychological contract obligations is still under debate (Taylor & Tekleab, 2005; Turnley & Feldman, 2000), more recently, researchers (e.g. Sutton & Griffon, 2004) have found support for examining the two constructs individually. Thus, an extensive body of literature has evolved regarding fulfillment and violation of psychological contracts.
Weick (1979) suggested that “satisfaction, productivity, interpersonal ties, and the likelihood of leaving are all dependent on the terms of the (psychological) contract and its fate at any given moment in time” (p.19). Numerous studies have investigated such relationships between the psychological contract and employee/work outcomes.

*Psychological Contract Fulfillment.* Whereas most researchers interested in the psychological contract have emphasized the importance of understanding psychological contract violations, some researchers have focused on the positive aspects of contract fulfillment. Psychological contract fulfillment occurs when a party believes the terms of the psychological contract are being met. Organizational citizenship behaviors (Organ, 1988; Organ, 1997) are contributions made by employees to the overall welfare of an organization that support performance but are not rewarded or part of one’s job description. Coyle-Shapiro (2002) examined the relationship between fulfillment of employer obligations and six dimensions of organizational citizenship behaviors (i.e. cooperation, loyalty, obedience, advocacy, social participation, and functional participation) and found a positive relationship between fulfillment and loyalty and functional participation. Additionally, Coyle-Shapiro found employer obligations to be positively related to advocacy and helping behaviors. Similarly, Turnely, Bolino, Lester, and Bloodgood (2003) examined the relationship between psychological contract fulfillment and three types of employee behaviors: 1.) in-role performance, 2.) organizational citizenship behaviors toward the whole organization, and 3.) organizational citizenship behaviors toward other individuals) and found that psychological contract fulfillment was positively related to all three of these types of behaviors.
Psychological Contract Violation. In contrast to psychological contract fulfillment, more researchers have focused on the occurrence and effects of psychological contract violations. That is, what happens when an individual feels they are not getting what they were promised? Defined by Rousseau (1995), “in the strictest sense, violation is a failure to comply with the terms of a contract” (p. 112). Other researchers (Morrison & Robinson, 1997) have distinguished contract violation from contract breach. When an individual perceives a difference between what is expected based on his/her beliefs of the terms of the contract and what he receives a contract breach occurs. Psychological contract violation occurs when an individual attaches meaning to contract breach. For example, in a study employees may be asked if an employer has met his obligations. If the answer is no, contract breach has occurred. However, psychological contract breach does not consider whether this lack of fulfillment had any importance or value to the individual. That is, if individuals perceive the breach as a loss, they consider the value of that loss and depending on its importance to the individual the breach creates feelings of violation.

Psychological Contract Violation and Employee Outcomes. Robinson and Rousseau (1994) were among the first to study the occurrence of psychological contract violation. Using a sample of 128 MBA alumni, surveyed at recruitment and two years later, they found that 54.8% of the participants reported their employer had violated the psychological contract at least once. In a later study of psychological contract breach, Conway and Briner (2002) reviewed daily diary entries of employees and found 69% of their participants reported at least one broken promise in a ten day period.
Although the majority of the studies investigating the occurrence of psychological contract violations survey employees that have worked within a particular organization for some time (i.e. 18-24 months), some researchers have found support for the existence of contract violation at the onset of the employment relationship, or even before there is a formal offer of employment. Waung and Brice (2000) found that applicants not selected for a position may feel as if a psychological contract has been violated if they do not receive a rejection letter after spending the time to interview with the employer, they are less likely to enter into an employment relationship with this employer in the future. These results are particularly interesting because they highlight the fact that initial versions of the psychological contract are formed immediately by new and even perspective employees even prior to entering into a formal employment relationship, and can have an impact on applicant decisions. Additionally, as Morrison and Robinson (2000) suggest, pre-hire communication is a very important aspect in considering the occurrence of psychological contract violation.

In addition to the occurrence of psychological contract breach and violation and factors leading to their occurrence, their impact on employee and work outcomes has been widely studied (e.g. Robinson & Rousseau, 1994; Robinson, 1996; Kickul & Lester, 2001; Coyle-Shapiro, 2002). Researchers interested in assessing these relationships generally do so in one of two ways, or use a combination of the two methods (Coyle-Shapiro & Kessler, 2000). Traditionally, researchers have explicitly asked respondents to use a Likert-type scale and indicate the degree to which specific obligations have been fulfilled. However, Robinson (1996) argued that this approach assumes that the obligations are part of the employee’s psychological contract. Thus,
Robinson recommended an approach to psychological contract violation measurement that consists of two parts. This method involves measuring obligations and the degree to which they are fulfilled, but also measuring whether or not they are perceived as obligations in the first place. That is, using the first method, the measure may ask employees to respond to how well an employer has fulfilled an obligation that the employee had not considered part of the psychological contract in the first place. Thus, the second measure should allow employee’s the opportunity to indicate that the obligation was not an obligation of either party in the relationship.

The relationship between job satisfaction and psychological contract violation has been examined by a number of researchers. Rousseau and Robinson (1994) found a negative relationship between satisfaction, trust, and employee’s intentions to remain with the employer and psychological contract violation. Knights and Kennedy (2005) found support for their hypothesis that job satisfaction mediates the role between psychological contract violation and job commitment. However, caution should be taken when interpreting these results because, as the authors note, their study is based on the perspective that job satisfaction is an antecedent of organizational commitment.

Numerous other researchers have examined the relationship between psychological contract violations and employee intentions to quit (e.g., Carbery, Garavan, O’Brien & McDonnell, 2003; Turnley & Feldman, 2000) or actual attrition (Knights & Kennedy, 2005) and found positive relationships. Similarly, Robinson (1996) found a negative relationship between contract breach and intentions to remain. In addition, psychological contract breach has been found to be related to a decrease in civic virtue
behavior, which is a dimension of organizational citizenship behaviors (Robinson, 1996), and an increase in deviant work behaviors (Kickul, 2001).

Yet another area from which psychological contract breach and/or violation has been considered is the fairness literature. The organizational justice literature is concerned with the fair treatment of employees and can be broken down into three primary areas: 1.) distributive justice, 2.) procedural justice, and 3.) interactional justice. One of the earliest works on distributive justices is Adam’s (1965) equity theory, which posits that employees judge the fairness of outcomes based on a comparison of their income and outputs to a referent others. Procedural justice, on the other hand, is not concerned with outcomes, but the fairness of the process in decision making (Thibaut & Walker, 1975; Cropanzano & Folger, 1991). Interactional justice refers to the treatment of individuals with dignity and respect, as well as appropriate communication with employees regarding procedures that may affect them (Cropanzano & Greenberg, 1997).

Within the psychological contract violation literature, Kickul, Neuman, Parker, and Finkl (2002) considered the interaction of psychological contract breach, interactional justice, and procedural justice and their relationship to citizenship behaviors. Kickul, et al. found the three variables together influence an employee’s actions towards their organization. Furthermore, the relationship between psychological contract breach and performance has been considered. Researchers have found a negative relationship between perceived breach and performance (Robinson, 1996; Robinson & Morrison, 2000). However, Robinson and Morrison were careful to point out that their study did not allow them to interpret causality. Thus, psychological contract breach may lead to lower
levels of performance, but it is also possible that lower levels of performance lead to higher levels of perceived psychological contract breach.

Finally, more recent research has investigated the relationship between psychological contract breach and employee reports of emotional exhaustion and stress (Gakovic & Tetrick, 2003). In addition, psychological contract violation in one organization may affect future employee-employer relationships (i.e. lack of trust in new employee, increase in cynicism in new position; Pugh, Skarlicki, & Passell, 2003). Theoretical work has even gone as far as to suggest that the moral problems and powers issues which arise from psychological contract violation may be related to workplace violence (Johnson & Indvik, 2003).

In sum, the research demonstrates that psychological contract violations can have a strong impact on many employee and work outcomes. Concerned with the impact of psychological contract violation on the employment relationship, researchers have presented a theoretical explanation of contract violation in which violation takes on a number of forms (Rousseau, 1995; Morrison & Robinson, 1997; Robinson & Morrison, 2000). A review of the suggested forms of violation will highlight the need for further investigation into the psychological contract formation process in the case of inadvertent violations or incongruence.

**Forms of Psychological Contract Violation**

Rousseau’s theory of violation suggests that it can take on three forms: 1) reneging, 2) disruption, or 3) inadvertent violation. In this conceptualization, a party is said to renege on a contract when they are capable of performing their obligations, yet,
for one reason or another refuse to do so. For example, an employee that has committed
to finishing a business proposal by the end of the week and leaves on Friday without
having it done has reneged on their obligation. Disruption on the other hand, refers to
violations that occur when it is impossible for one or both parties to fulfill their
obligations, yet they are willing to do so. For example, an employer may promise an
employee advancement opportunities; however, economic conditions and position
openings may restrict the number of opportunities available. Whereas reneging and
disruption are based on execution of agreed upon obligations, inadvertent violation
occurs when the parties have different beliefs as to the conditions and terms of the
contract. That is, both parties may be willing and able to satisfy the terms of their
agreement; however, their versions of the psychological contract differ, resulting in
inadvertent violation. For example, if an employer’s interpretation of child care benefits
is a 10% discount at a local child care agency and an employee’s interpretation of child
care benefits is on-site child care paid for by the company, an inadvertent violation may
occur when it is discovered that the terms of the two parties are in conflict.

Beyond Rousseau’s (1995) theory of contract violation, Morrison and Robinson
(1997) expanded and developed a theory of contract violation defining perceived contract
breach as the individual’s cognition that their organization has failed to meet the terms of
their psychological contract, and contract violation as the affective state that follows.
Robinson and Morrison (2000) examined the link between contract breach and feelings of
contract violation. Using a sample of MBA alumni at two times (with time one at three
weeks before graduation and time two at eighteen months later), they found as predicted
that psychological contract breach and psychological contract violation were highly
positively correlated. Furthermore, Morrison and Robinson suggest that violations occur for one of two reasons: 1) reneging or 2) incongruence.

In this conceptualization, reneging refers to a violation that occurs when a promise is consciously broken. Morrison and Robinson (1997) suggest reneging can be due to two reasons: inability and unwillingness. Similar to Rousseau’s concept of disruption, inability refers to the violation that occurs when a party is unable to perform one of their obligations for one reason or another, while unwillingness is similar to Rousseau’s concept of reneging where a party is capable of performing their obligation, but unwilling to do so. Furthermore, Morrison and Robinson’s idea of incongruence corresponds with Rousseau’s concept of inadvertent violation where the two parties interpret the terms of the contract differently. This may be as a result of the two parties believing the elements of the contract differ or different interpretations of the same element. Interestingly, it has been suggested that “incongruence can result when a promise is established, or it can develop as time elapses and beliefs of promises decay or become distorted in memory (Klatzky, 1980)” (p. 235, Morrison & Robinson, 1997). Thus, the key to understanding psychological contract violation that is a result of incongruence may lie in developing a better understanding of the psychological contract formation process.

In sum, researchers theorize that psychological contract violation can take a number of forms (i.e. reneging, incongruence) and empirical studies have consistently found that psychological contract violation can have detrimental effects for both the employee and employer. Incongruence has been highlighted by researchers as a form of psychological contract violation, yet it has been recognized that “to date scholars have
not fully or systematically explored this important aspect of employment relationships” (p. 177, Morrison & Robinson, 2004). If psychological contract violations are the result of incongruent beliefs regarding the obligations between the two parties, then it seems essential to consider the psychological contract formation process in order to reduce the occurrence of such violations. The current study will take one step in attempting to better understand psychological contract formation and investigate how using multiple sources of information in psychological contract formation may lead to incongruence. Before the current study is presented, however, the current research on psychological contract formation is reviewed.

*The Psychological Contract Formation Process*

Although, the focus in the psychological contract literature has been on the occurrence and effects of contract violation, Rousseau (2001) points out that little work has been done to better understand how psychological contracts are formed. Yet, contract formation may be the place to start as researchers attempt to find solutions to contract violation resulting from incongruence. Kotter (1973) suggested that the joining up process (i.e. early experiences between employee and employer) plays a significant role in determining the elements included in the psychological contract and whether or not the two party’s contracts match.

Rousseau (1995) describes the basic elements of psychological contract formation: external factors (i.e. messages organizations send, social cues, and organizational factors), encoding (i.e. the process by which individuals interpret external factors as promises), individual cognitions and predispositions (i.e. cognitive bias and
motives), and decoding (i.e. interpretation of promises into behavioral standards). All of these elements play a role in forming the beliefs systems of the new employee.

For example, during recruitment and early employment stages employees gather information from various external sources (job advertisements, recruiters, other employees). Rousseau suggests that the encoding process is the point at which the employee interprets specific pieces of information as promised obligations. This often occurs with information that involves personal interaction, performance standards, or organizational direction and is theorized to be moderated by individual predispositions. As an example of this process, those that are career oriented may believe they were promised more organizational growth than those that are not as career oriented. In addition, Rousseau points out the effects of the individual’s predisposition on the psychological contract by suggesting that cognitive biases play a major role in the development process. For example, cognitive researchers have shown that one is going to remember more readily information that fits one’s self-concept (Taylor & Brown, 1988). Rousseau suggests this cognitive bias can lead one to believe they have fulfilled their end of the bargain in the employee-employer relationship. During the decoding process, the employee is theorized to interpret these promises into behavioral standards. For example, what does it mean to meet performance goals or be a dedicated good citizen? These behavioral standards later allow for the employee to evaluate whether or not promises have been upheld.

Surprisingly little empirical research has been done investigating the psychological contract formation process. Researchers on this topic have focused on attempting to identify dimensions on which the elements within a psychological contract
may fall (Rousseau, 1995; Coyle-Shapiro & Kessler, 2000) and how an employee’s beliefs of obligations change once employed; for example, through early socialization (Robinson, Kraatz, & Rousseau, 1994; Thomas & Anderson, 1998). However, few have examined pre-employment stages, early communication in an organization, and the process of psychological contract formation.

One qualitative investigation of psychological contract formation was conducted by Millward-Purvis and Cropley (2003) who recorded interviews between nannies and parents and examined the expectations discussed. They found expectations such as pay, hours, and feeding time were more likely to be discussed than were expectations such as parenting style and focus on child. They also found that those experienced in nanny-parent relationships discussed more expectations. Examples of common psychological contract elements include training, long-term job security, promotion and advancement, and career opportunity.

Thus far, the psychological contract has been defined and the history of the construct reviewed. The case has been presented that the psychological contract is a “strong determinant of organizational behavior” (Schein, 1980). Research has shown that violations of the psychological contract perceived by employees can have detrimental effects to the employment relationship (e.g. decreasing job satisfaction, decreasing production, increasing anti-citizenship behaviors). Psychological contract theory states that contract violation can take on numerous forms including incongruence due to a misunderstanding between the two parties regarding the terms or elements of the contract. It is during the pre-hire interview time and initial employment that employees begin to form new psychological contracts (Rousseau, 1990). Thus, a better
understanding of the psychological contract formation process may help to decrease the occurrence of psychological contract breach, violation, and the detrimental effects for both parties.

According to Rousseau (2001) psychological contracts are developed and change over time. Employees develop their initial psychological contract with a new employer using information from a variety of sources, such as, job announcements, recruiters, interviewers, supervisor, and coworkers/peers. Thus, it seems logical to begin an investigation into psychological contract formation by considering the use of information and the source. Specifically, how information from some sources other than the new employer may lead to incongruence if this information is inaccurate. Yet, little empirical research has considered how the use of information from sources other than the new organization in psychological contract formation.

The present study took advantage of an applied sample and manipulated peer information present when forming a psychological contract. Additionally, the researcher sought to determine if participants could accurately identify the source of promised obligations.

Psychological Contract Formation and Source Misattribution. As previously presented, the formation of a new psychological contract begins at the onset of an employment relationship, which generally begins with a recruitment process. The recruitment process is often a long drawn out process with long delays between phases (Rynes, Bretze, & Gerhard, 1991). During this process employees receive a wealth of new information from the perspective employer, much of which becomes the basis of the psychological contract. Among the variety of sources from which newcomers may
receive information regarding the new employer are job advertisements, organizational agents, and or peers (Rousseau, 1995). Additionally, applicants searching for a job often apply for more than one position at a time; thus, they are receiving information from numerous organizations at once. Though early communication has been identified as important to the psychological contract formation process, research in this area is scarce (Purvis & Cropley, 2003).

When considering the information one receives regarding a new job, it might seem reasonable to assume that individuals can remember the details of a position, the promises made to them by a new employer, and from where they heard or learned a particular piece of information (i.e. the source). However, research on memory reveals otherwise. “Though often reliable, human memory is also fallible” (p. 182, Schacter, 1999). Among memory indiscretions discussed by Schacter, are different types of forgetting, errors of memory (inaccurateness), and the inability to forget things that one wants to (persistence). One particular inaccuracy discussed by Schacter is misattribution of source.

When an individual attributes the origin of a memory to a source different than the one that it actually came from, a source monitoring error or misattribution occurs (Johnson, Hastroudí, & Lindsay 1993). For example, you might remember being invited to a party by a friend. When asked who invited you to the party, you might answer “Nancy” because your friend Nancy is always inviting you somewhere, when in fact it was your friend Julia that invited you to this particular party. Researchers in the area of source misattribution have noted that source misattribution is surprisingly common and can happen in as little as two days after information is learned (Schacter, 2001).
Source misattribution has been explored in a variety of research settings and its implications have been identified in real world settings. For example, cryptomnesia is inadvertent plagiarism that occurs when an individual believes he or she has come up with an original idea when, in fact, the idea came from someone else. Marsh, Landau, and Hicks (1997) found cryptomnesia occurred more often when participants were generating ideas than when they were taking a recognition tests and that a speeded response condition increased inadvertent plagiarism.

Research in the area of eyewitness testimony has shown that when witnesses are misled with information pertaining to a crime, they sometimes attribute this information to the crime and actually believe it to be true (Zaragoza & Lane, 1994). Additionally, Niedzwiedska (2003) showed that participants asked to report autobiographical information after being exposed to information about another individual, including some of the information about the other individual into their own reports of autobiographical information. Furthermore, individuals not only misattribute information, they are also confident in their misattributions. For example, Parks (1997) studied subjects that were asked to report whether they had used a “key point” in a mock debate. The “key point” had been given to them prior to the start of the debate and 11 of 28 subjects who did not use the key point reported having used it. More importantly, six of the eleven that had reported using it, but had not, not only claim they had used it, but insisted they had used the “key point.” Other researchers have used confidence ratings to measure the extent to which individuals believe their source attributions are correct and have consistently found that participants are confident in their source decisions (e.g. Marsh & Landau, 1995; Marsh, Landau, & Hicks, 1997).
It is cases such as these that have led the current researcher to question whether information contained in the psychological contract is subject to source misattribution. That is, when individuals incorporate information from sources other than a new employer into a psychological contract, they may come to believe that this information was promised by the new employer and they may be confident in this judgment, inadvertently making a source misattribution.

A number of empirical studies have demonstrated the ease with which source misattribution occurs (e.g. Crombag, Wagenaar, & Van Koppen, 1996) and others have focused on explaining how or why they occur (e.g. Schacter, 2001). Schacter notes that misattribution can occur as a result of incomplete memory binding during the encoding process or faulty retrieval of information during remembering. Source decisions are based on either qualitative information about an experience such as emotional reactions or temporal information or schematic knowledge or beliefs about the category of information (Bayen, Nakamura, Dupuis, & Yang, 2000; Mather, Johnson, & De Leonardis, 1999).

Specifically, Bayen et al. (2000) investigated the use of schematic knowledge about sources when making source monitoring decisions. The authors found that individuals were more likely to correctly identify the source of information when the information was consistent with what they expected. Additionally, they found that this increase in correct source identification was due to guessing. That is, their guessing hypothesis suggests that when individuals do not remember the source of an item, they make guesses based on their pre-existing beliefs.
Additionally, misattribution can occur when attempting to discriminate between internal thoughts and external sources (i.e. did I think that or did someone tell me that) or discriminating between two external sources (i.e. two friends). A number of factors have been found to increase the likelihood of misattribution including perceptual similarity (Hashtroudi, & Johnson, 1992; Johnson, Foley, & Leach, 1988; Johnson, Raye, Wang, & Taylor, 1979) and emotional conditions (Onuma and Yuji, 2002). Additionally, Johnson, Hastraudi, and Lindsay (1993) suggested that stress or divided attention during the encoding process can lead to misattribution because it may prevent full contextualization of information at acquisition. Christianson and Loftus (1987) showed that individuals are more likely to remember the “essence” of traumatic events; however, they tend not to remember the details of these events. More recently, Li, Nilsson, and Wu (2004) asked participants to recall the source of statements (i.e. male voice or female voice) and found a significant main effect for age, anxiety, and learning condition on source recall. Furthermore, they found a significant interaction between age and anxiety, where anxiety level made a difference in source recall for older individuals, but not for younger individuals.

In related studies, researchers have investigated the role of stereotypical information in making source decisions and its implications for social perception (e.g., Bodenhausen & Wyer, 1984; Slusher & Anderson, 1986; Jacoby, Wolashyn, & Kelly, 1989; Sherman & Bessenhoff, 1999). Similar to schematic knowledge, stereotypical information is often relied upon in making source decisions when processing capacity is restricted (Jacoby, Woloshyn, & Kelly, 1989) and processing resources are low (Bodenhausen, Macrae, & Sherman 1999; Hamilton & Sherman, 1994). However, a
reliance on stereotypical information can complicate the source monitoring process by leading perceivers towards making source decisions based on stereotypical biases (Sherman & Bessenhoff, 1999; Hamilton & Sherman, 1994) and thus, influencing the accuracy of perceptions of individuals and their behavior.

Though I/O psychologists have integrated theory from cognitive psychology with organizational phenomena (e.g., Lord & Maher, 1992), researchers have not yet considered the implications that source misattribution may have on the employment relationship. In fact, investigation into source misattribution in organizational phenomena has been limited.

Highhouse and Bottrill (1995) considered the impact of misinformation on memory for behavioral information in a social decision making context. Groups of participants were asked to watch a video interview and evaluate the interviewees after receiving false information they were told was from another interviewer. Highhouse and Bottrill found that participants were accepting of this misinformation, were confident it was true, and in a later memory test reported that it, in fact, occurred in the video. However, after a supplemental condition was added to the study where the misled group was alerted to the misinformation, the memories of those in the misinformation alerted group did not differ from those in the control group. Highhouse and Bottrill concluded the misinformation effects found were due to social influence, rather than source attribution errors.

More recently, Martell and Evans (in press) suggested a source monitoring training technique to help reduce the effects of rater expectancy in appraising employee performance. Specifically, they trained a group of raters to determine whether they were
making decisions based on remembering or knowing that a specific behavior occurred. When decisions are based on remembering, the rater actually recalls the specific behavior occurring; however, when decisions are based on knowing, the rater makes a decision based only on a sense of familiarity for the behavior. That is, when knowing, an individual may just reason that the behavior occurred rather than specifically remembering an instance of the behavior. Martell and Evans (in press) found that when trained to make decisions based on memory for a specific behavior rather than the knowledge of prior information (i.e., positive or negative information presented about a group prior to evaluating a specific behavior) raters were able to make more accurate judgments of performance.

The Current Study

The current study was designed to consider the use of information from sources other than the new employer in initial psychological contract formation, memory for source, and the implications this may have for psychological contract breach and violation. Specifically, I used a creative lab experiment to take advantage of our psychology department’s research participation requirement and the student participants as an applied sample.

I attempted to influence individual’s understanding of the employment relationship through bogus peer obligations and investigated the integration of this information from peers into the psychological contract. Next, I considered whether or not individuals accurately attributed this information to the correct source. Finally, I
investigated if the use of such information leads to reports of psychological contract breach and violation.

Taylor and Tekleab (2004) noted that methodologies used to study the psychological contract are limited and suggested that to further develop our understanding of the construct, we must move beyond the correlational studies that use MBA students that have become the norm in psychological contract research. Thus, Taylor and Tekleab called for the development of field experiments and creative lab experiments to expand psychological contract research. The psychology department research participation requirement at Ohio University offers a unique opportunity for a creative lab experiment into the elements of the psychological contract and was used in the current study.

Studies investigating the psychological contract have considered a number of types of employment relationships including the psychological contract of temporary workers (e.g. Millward & Hopkins, 1998), interim managers (e.g. Inkson, Heising, & Rousseau, 2001), and long-term organizational employees (e.g. Coyle-Shapiro & Nueman, 2004). In addition to these relationships, Rousseau’s theory of psychological contracting recognizes that psychological contracts exist between any two interdependent parties (Rousseau, 1995). The psychology department research participation requirement creates an exchange relationship between the student (participant) and department. To explore the psychological contract, this study investigated the psychological contract between the psychology department at Ohio University and students participating in psychology experiment pool. This relationship is based on an exchange agreement between the department and the student in that students receive experience in the
methodology of psychology experiments and course credit for their participation, while the psychology department is able to gather the data necessary to advance their research projects. Considering the psychological contract between these two parties provided a unique opportunity for the manipulation of information and collection of data.

Researchers (e.g., Rousseau, 2001) theorize that psychological contract obligations develop from individual experiences, beliefs, and perceptions with different elements of the contract emerging over time. Individuals may begin to form a psychological contract with pre-existing beliefs regarding the employment relationship and later incorporate information from the job interview, early experiences on the job, and information received from coworkers. The schema literature suggests integration of an event into a schema may result in elements of the schema being included in a recollection of the event even if it did not appear in the original situation (Welch-Larson, 1985). Similarly, individuals may integrate information from sources other than the new employer (i.e. peers) into their psychological contract and later believe that information was provided by the new employer. Thus, I hypothesize:

**Hypothesis 1: Participants will identify obligations as part of their psychological contract that were not presented as an obligation by a departmental source.**

In addition, I manipulated whether peers presented a bogus obligation to participants in an attempt to influence their schemas regarding the obligations in the relationship with the organization. Because participants in the experimental condition actually received bogus obligations from their peers, they should be more likely to incorporate these obligations into their psychological contracts:
Hypothesis 2: Participants provided with bogus obligations from their peers are more likely to rate the bogus obligation as part of their psychological contract than participants not provided the bogus obligations.

Furthermore, I speculated that the process by which the bogus obligation influences the psychological contract is via source misattribution. In particular, information not objectively provided by the department that is incorporated into the psychological contract will become part of the individual’s belief regarding the employment-relationship. Thus, it should more likely to have been identified as having come from the organization. Specifically, if psychological contract obligations are schema regarding the employment relationship, participants should believe these items came from departmental agents. Thus, they should accurately identify items presented by department agents and should make mistakes when identifying the source of obligations presented to them by peers. That is, participants should believe the information contained in the psychological contract came from a departmental source [though it did not] rather than a peer.

Hypothesis 3: Participants will make mistakes identifying the source of promised obligations as departmental agents when in truth the obligations did not come from the department.

Moreover, again because participants in the experimental condition actually received the bogus obligations as messages, they should be more likely to make source misattributions than participants in the control condition who do not receive the messages.
Thus:

_Hypothesis 4: Participants in the experimental condition would be more likely to identify the department as the source of peer obligations than participants in the control condition._

To assess the downstream impact of the bogus obligation, I also provided a context in which the bogus obligation could be met, but would not be met. Thus, individuals believing the obligation real (i.e., part of the psychological contract) are more likely to experience and report a breach in the psychological contract. Thus:

_Hypothesis 5a: Individuals rating the bogus obligations as part of their psychological contract will more likely report a breach to their contract than those not rating the bogus obligations as part of their psychological contract._

_Hypothesis 5b: Individuals rating the bogus obligations as coming from the organization will more likely report a breach to their contract than those rating the bogus obligations as coming from a non-departmental source._

**Methods**

**Participants and Design**

To introduce bogus obligations, breaches to those obligations, and determine possible reactions to the breaches, a three-part study was conducted. Participants for the study were undergraduate students from introductory psychology courses at Ohio University. The study was run during the winter and spring quarters of the 2005-2006 academic year. A total of 98 took part in session one over both quarters (76 winter quarter, 22 spring quarter). Of the 98 participants, 49 were run through the experimental
condition and 49 through the control condition. Table 1 shows the distribution of individuals in each condition by quarter. Eighty-six of the 98 participants returned for part two of the study (70 winter, 16 spring) which resulted in a second session return rate of 87.76%. All participants that completed both sessions one and two were invited to complete the web survey, which was the third part of the study. Sixty-one participants completed the web survey (54 winter, 7 spring), resulting in a return rate of 70.93% from session two to session three and an overall return rate of 62.24%.

Table 1

<table>
<thead>
<tr>
<th>Condition</th>
<th>Experimental</th>
<th>Control Condition</th>
<th>Total Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Quarter</td>
<td>40</td>
<td>36</td>
<td>76</td>
</tr>
<tr>
<td>Spring Quarter</td>
<td>9</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>Total Participants</td>
<td>49</td>
<td>49</td>
<td>98</td>
</tr>
</tbody>
</table>

The final data set of 61 participants included 31 experimental participants and 30 controls. The sample was mainly female (85.2%) and made up entirely of freshmen (82%) and sophomores (18%) with a wide variety of majors. There were no sex differences on any of the dependent variables; thus, male and female data was analyzed together. Almost one quarter (21.3%) of the participants reported that they had not yet decided on a major. The next most frequent major was journalism (8.2%).
Materials and Manipulations

*Bogus Peer Obligations.* Obligations were manipulated by having two peer confederates interject information related two psychological contract obligations in the experimental sessions and unrelated information in the control sessions. The two peer confederates were female undergraduate research assistants and remained the same for both quarters that the study was run.

Table 2
Obligation Items by Source.

<table>
<thead>
<tr>
<th>Source: Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The department ensures that I am not obligated to participate in a study in which I do not feel comfortable.</td>
</tr>
<tr>
<td>2. I am obligated to show up for the sessions for which I sign up.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source: Peer (Bogus Obligations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When the experimenter is late, they are obligation to give me an extra point.</td>
</tr>
<tr>
<td>2. Experimenters are obligated to allow both males and females to participate in their studies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source: New (Neither document or peer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am obligated to participate in studies for which I took the pre-test.</td>
</tr>
<tr>
<td>2. The department has to promised to provide enough studies in order for participants to earn their required points.</td>
</tr>
</tbody>
</table>
Perceived Psychological Contract Obligations. Six potential psychological contract obligations were measured (two from each of three potential sources: department, peer, or new). The six elements are listed in Table 2.

The elements of the psychological contract were measured in two ways. The first of the perceived obligations measures investigated whether or not each element was perceived by the participant as an obligation promised by the psychology department or a participant obligation in the relationship. Participants answered yes/no to a series of statements. Specifically, the instructions stated “For each of the elements below please answer yes or no indicating whether the element was promised to you by the psychology department or something that you promised to the department in exchange for your participation in the experimental research program.” This represents the language used by researchers investigating the perceived psychological contract obligations (Kickul, 2001; Rousseau, 1990).

The second measure of psychological contract elements used a Likert-type scale to measure psychological contract terms. This is similar to the scales used to measure psychological contract elements in other studies (e.g. Robinson, Kraatz, & Rousseau, 1994). As with the first measure of psychological contract content discussed above, this survey listed each of the six elements. Instructions stated “For the following items, please identify the extent to which the department promised to provide you (the participant) or you promised to provide to the department in exchange for participating in the experimental research program. The participants responded using a five point scale (1 = not at all, 2 = to a little extent, 3 = to a moderate extent, 4 = to a great extent, 5 = very great extent).
Each participant received both of these psychological contract content measures embedded in the web survey which asked for the participants’ response to participating in the psychology department research participation program.

*Source Attribution.* To identify the source from which participants believed their psychological contract obligations originated, participants were asked to make source attributions. For those obligation items that participants indicated were obligations in the psychological contract, participants were asked to identify the source of the promise. Specifically, after participants were asked if the element was a promised obligation, the next question stated “If yes, please specify the source of this promise. That is, where did you learn this information?” Participants options to the item were Professor/Instructor”, “Experimenter”, “Another Participant”, “Document regarding the experiment requirement”, and “Not Presented (I never heard this)”.

*Peer, Instructor, and Experimenter Credibility.* To examine the extent to which participants believed different sources of information to be credible, the final survey included six items for each source (peers, instructor, or experimenter) developed from Fisher, Ilgen, & Hoyer (1979). Three of these items examined trust of peers and three examined peers perceived expertise two factors that determine source credibility set forth by Hovland, Janis, & Kelly (1953). The three trust items had reliabilities of 0.39, 0.89, and 0.67 for peer trust, instructor trust, and experimenter trust, respectively, and reliabilities of the three expertise items were 0.89, 0.73, and 0.93 for peer trust, instructor trust, and experimenter trust, respectively.

*Psychological Contract Breach and Psychological Contract Violation.* As discussed above psychological contract breach and violation have been separated by
some researchers. Psychological contract breach refers to the failure of one party to comply with a promise whereas psychological contract violation refers to the affective response of the party that reports the breach. Although these constructs have been distinguished, they are expected to be highly correlated. Psychological contract breach was measured using three items. Participants responded using a five-point numerical rating scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) to the following items: 1. I have NOT received everything promised to me in return for my contributions in the research participation program, 2. All of the promises made to me by the department in the research participation program have been kept (reverse scored so that higher score equals higher breach), and 3. I feel the psychology department did what they could to ensure the promises made to me were kept (also reverse scored). Psychological contract breach was also measured using three items. The third item measured feelings of contract violation. Specifically, the items were: “I feel the psychology department violated the contract between us,” “I feel let down by the psychology department,” “I feel deceived by the psychology department.”

Reliability of the psychological contract breach measure was $\alpha = 0.75$. Reliability of the psychological contract violation measure was $\alpha = 0.82$. As expected the two measures were positively correlated, $r = 0.64, p < 0.001$; Thus, they were summed to create one measure. The reliability of this overall measure was $\alpha = 0.84$.

Finally, the participants were asked, “this quarter, did the psychology department fail to meet any of obligations promised to you?” The participants answered yes or no. A follow up to this question was contingent on their response to the question indicating “if yes, what promises/obligations were not upheld, please explain.”
Procedure

Participants were recruited from the psychology pool to participate in the study. There were three parts to the study. The first two parts were experimental sessions and the third a web survey. Students signed up to participate on the psychology experiment web site for the first two parts of the study. The sessions were linked, so that the participants signed up for both part one and two at the same time. These first two sessions were designed as pseudo-studies in which participants believed they would participate in a new variation on Ebbinghaus’ classic memory studies entitled “Considering a classic memory study: A recognition perspective” (see Appendix A for full text). The date for the second session was 14-21 days after the first session. This was set for two reasons: 1) to enhance the face validity of the cover story, and 2) to allow a time delay for the decay of the information presented in session one. A maximum of fifteen participants could sign up for each session; however, actual session sizes ranged from 1 participant to 15 participants. In addition, two confederates participated in each of the first sessions.

Prior to the start of the study, session one timeslots were randomly assigned to be either control or experimental using a randomly generated list of 0’s and 1’s (0=control; 1 experimental). The first session ran during the first four weeks of the winter quarter or spring quarter. The experimental conditions were assigned for the purpose of the experimental manipulation in session one only. The manipulation in session two was the same for both the control and the experimental group.

Upon arrival to the first session, participants were greeted by the experimenter, given a consent form, participant folder, and sign in sheet (see Appendix B for complete session one script). All sessions were held in one of two rooms (a classroom with...
conference tables or a conference room with the same style tables). Participants were all seated at the same table facing a projection screen. In addition to the participants that were scheduled for the session, two confederates (psychology undergraduates that agreed to work in the I/O lab for the quarter) took predetermined seats across from each other. As the second confederate entered the room, she greeted the first as if this was the first time they were seeing each other for the quarter. Once all scheduled participants and both confederates arrived (or at 10 past the hour), the experimenter began (see script Appendix B). The experimenter stated that there was still one participant that they were waiting on and that they would wait a couple more minutes before beginning the study because most people were on “OU” time and tend to think studies begin at ten after the hour like classes. Then the experimenter walked out of the room and shut the door.

After the experimenter left the room, the two confederates began a dialog. The dialog was the same across conditions with the exception that the experimental condition involved the interjection of two statements regarding obligations in the department-participant relationship by two confederates and the control condition involved statements interjected that were unrelated to the psychological contract (e.g. going to see a movie) made by the confederates. The purpose of the conversation was to manipulate participant beliefs regarding the obligations of the department to them in the participant-department relationship. The two experimental obligations used were 1) if the experimenter is late to a study, participants will receive one extra point for participating, and 2) the department is required to allow both males and females to participate in all studies. Both of these pieces of information are false, which allows the experimenter to track the source of the information.
After a period of 1 minute and 35 seconds (a period predetermined by rehearsal of the script), the experimenter returned to the room, collected the consent forms and told the participants they were not going to wait any longer for the last participant and began the pseudo-study.

To assess psychological contract breach and violation, it was necessary that the bogus obligations presented by the confederates in session one not be fulfilled. The second session was designed so that the first bogus obligation presented by the confederate in session one was not fulfilled. When signing up for the experiment, participants were asked to sign up for the second session under the pretense that they would be returning in order to determine how much information from session one was retained and whether re-memorization of the material from session one would take less time after a two week delay. All second sessions were run in the same room as the first and again group sizes ranged from 1 to 15 persons. Participants were not, however, necessarily in the same groups they had been in for the first session.

When participants arrived for the second session, there was a note on the door that read “Recognition Study Participants: Please Come In and Have a Seat!” The experimenter arrived at approximately 8 minutes after the scheduled time for the study begin, apologizing for being late. Participants were reminded that they had signed a consent form during the first session; thus, they would not be signing another one that day. The participants were first asked to complete the same recognition test they completed in session one and then the memorization process from session one was completed.
The second obligation presented by the confederates (experimenters must allow both males and females to sign up for their studies) was violated in a different way. Once all data was collected from session one. A bogus study was listed on the psychology pool web page (Appendix C). This study was entitled “Creative marketing techniques in sports management” and in both the detailed description and eligibility requirements indicated MALE PARTICIPANTS ONLY.

The final session of the study was not truly a session. It was a web survey distributed via email to all participants that had completed both sessions one and two following the completion of the second portion of the study (approximately week six; see Appendix D for recruitment email). The email was entitled “Research Participation Survey” was presented as an opportunity for students to earn one additional research credit by providing the psychology department with valuable feedback regarding their experience participating in the experimental research program (see Appendix E for survey) and participants were unaware that this survey was linked to the memory studies in which they had participated. Additionally, in attempt to achieve the highest return rate possible, participants were asked to complete the survey regardless of whether or not they needed an additional credit and email reminders were sent every 3-4 days to participants that had not yet completed the survey.

To complete the survey, participants were asked to follow a web link that took them directly to a consent form that explained the survey was designed to gather feedback regarding the experience of participating in the research program at Ohio University. The survey contained both open ended and choice response items related to the research participation program and the Psychological Contract Survey (described in
detail below). When students completed the survey, they received debriefing information explaining the entire project and had the opportunity to give feedback indicating suspicion of deception during the memory experiment. Specifically, questions were asked to determine if the student’s discussed their experiences with others.

**Analyses**

Analysis of the data involved two somewhat unusual methods. First, Hierarchical Linear Modeling (HLM; Raudenbush & Bryk, 2000) was used to examine Hypotheses 1-4. HLM involves examining multiple levels of analysis simultaneously. Here the level-one variables were at the items nested within the level-two variables, individuals. The specific HLM models used to test each hypothesis are described in the results section.

A second type of analysis focused on modeling the nature of the psychological processes involved (e.g., memory errors, guessing errors). As discussed above memory for source has been investigated in a variety of areas (e.g., Johnson, Hastroudi, & Lindsay, 1993). However, measurement and analysis across these areas is not consistent (Batchelder & Riefer, 1990). In fact, researchers have used a variety of statistical methods when analyzing memory for source from descriptive statistics (e.g. Parks, 1997) to identification of origin scores (e.g. Li, Nilsson, & Wu, 2004). Yet, Batchelder and Reifer argued that in the investigation of source memory, there are two cognitive capacities involved. That is, first one must recognize an item as old or new. Secondly, conditional on the old/new detection, one must determine the source of the statement. Thus, Batchelder and Reifer developed a family of multinomial processing-tree models
that can be used to make parameter estimates and allow for comparisons of these
different cognitive capacities.

The models developed by Batchelder and Riefer (1990) are based on 3 x 3
frequency tables as seen in Table 3. The table consists of response frequencies based on
the actual source and source indicated by participants. The data from this frequency table
is used to generate parameter estimates where each parameter is a probability measuring
a specific cognitive processing capacity. Examples of the multinomial modeling trees
developed by Batchelder and Riefer adapted for the current study are presented in Figures
1 and 2 and include stimulus detection parameters, source discrimination parameters, and
response bias parameters. The cognitive capacity measured by each parameter is
described next.

Table 3
Standard Frequency Table for Source Monitoring Multinomial Modeling Analysis.
Adapted from Batchelder and Riefer (1990).

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th>B</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$Y_{11}$</td>
<td>$Y_{12}$</td>
<td>$Y_{13}$</td>
</tr>
<tr>
<td>B</td>
<td>$Y_{21}$</td>
<td>$Y_{22}$</td>
<td>$Y_{23}$</td>
</tr>
<tr>
<td>N</td>
<td>$Y_{31}$</td>
<td>$Y_{32}$</td>
<td>$Y_{33}$</td>
</tr>
</tbody>
</table>
Figure 1
Multinomial model for the control group
When looking at a statement in a source monitoring task, participants first need to make a decision. The decision is to either detect the item as old (this item was presented) versus new (I have not scene this item in the past). The D parameter refers to the probability of a participant correctly detecting an item as new for the specified source. There is a specific D parameter estimated for each source (e.g. $D_1$ refers to the probability of correctly detecting an item from source A as being old). Conditional on detecting the item as old, the next step for the participant is to determine the source of the statement. The d parameter represents the probability of a participant correctly identifying the
source of the item. Additionally, there are a number of ways participants can arrive at correct or incorrect responses in addition to follow the $D_1$ to $d_1$ path.

The $b$ parameter represents the probability a participant will respond “old” to an item they do not detect as having been old (e.g. they guess it is old) and the $a$ parameter represents a correct guess to source identification when an item is correctly detected as old (e.g. they correctly identify the item as old, but guess the source of the item). Finally, the $g$ parameter represents a correct guess to the source identification when an item has been identified as new.

Results

As discussed above, data was collected over two quarters, a series of analyses revealed no significant differences between the data sets on any of the measures from the two quarters. Thus, the data sets were collapsed across quarters and analyzed as a single data set. The final data set contained 61 persons with 6 measures for each person (2 for each source) resulting in 122 measures for each source and a total of 366 measures.

Descriptive Statistics

Table 4 shows the frequency of responses to the dichotomous psychological contract obligation items by source and condition. Department items were identified as part of the psychological contract 89% of the time while department items were identified as part of the psychological contract 23% of the time. Surprisingly, new items were identified as part of the psychological contract 41% of the time. Table 5 breaks these responses down by each of the six psychological contract obligation statement and item type (dept., peer, new).
Table 4  
Frequency Distribution of Response to Dichotomous Psychological Contract Measure by Condition for Each Source.

<table>
<thead>
<tr>
<th>Source</th>
<th>Response</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Org</td>
<td>Experimental</td>
<td>54</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>54</td>
<td>6</td>
</tr>
<tr>
<td>Peer</td>
<td>Experimental</td>
<td>18</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>New</td>
<td>Experimental</td>
<td>28</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>21</td>
<td>39</td>
</tr>
<tr>
<td>Perceived Psychological Contract Obligation</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>Dept</td>
<td>Peer</td>
<td>New</td>
<td>Dept</td>
</tr>
<tr>
<td><strong>1. The department is obligated to</strong></td>
<td>exp</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>allow me to quit any study in which I</td>
<td>control</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>do not feel comfortable.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. I am obligated to show up for the</strong></td>
<td>exp</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>sessions for which I sign up.</td>
<td>control</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td><strong>3. When the experimenter is late, the</strong></td>
<td>exp</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>department is obligated to give me an</td>
<td>Control</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>extra experimental point.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. Experimenters are obligated to</strong></td>
<td>exp</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>allow both males and females to</td>
<td>Control</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>participate in their studies.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. I am obligated to participate in</strong></td>
<td>exp</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>studies for which I took the pre-test.</td>
<td>Control</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td><strong>6. The department has promised to</strong></td>
<td>exp</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>provide enough studies in order for</td>
<td>Control</td>
<td>16</td>
<td>1</td>
</tr>
</tbody>
</table>
There was minimal variance in the response to the dichotomous measure of psychological contract breach. That is, 98.1% of participants across conditions reported the psychology department did not fail to meet any of the obligations promised to them whereas 1.9% (1 participant) responded yes to this statement. The Likert-type measure of psychological contract obligations revealed a mean violation rating of 1.54 (SD = 0.50). Finally, descriptive statistics for the credibility of each of the three sources are presented in Table 6.

**Table 6**
Descriptive Statistics for Credibility Measures.

<table>
<thead>
<tr>
<th>Source</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Trust</td>
<td>3.64</td>
<td>0.51</td>
<td>61</td>
</tr>
<tr>
<td>Instructor Trust</td>
<td>4.16</td>
<td>0.67</td>
<td>61</td>
</tr>
<tr>
<td>Experimenter Trust</td>
<td>3.98</td>
<td>0.63</td>
<td>61</td>
</tr>
<tr>
<td>Peer Expertise</td>
<td>2.96</td>
<td>0.76</td>
<td>61</td>
</tr>
<tr>
<td>Instructor Expertise</td>
<td>4.19</td>
<td>0.60</td>
<td>61</td>
</tr>
<tr>
<td>Experimenter Expertise</td>
<td>3.97</td>
<td>0.64</td>
<td>61</td>
</tr>
</tbody>
</table>
Hypotheses Tests

Hypothesis 1 predicted that participants would identify items that were not objectively presented by an organizational agent as perceived psychological contract obligations.

Hypothesis 1 was analyzed by a test of the following HLM model (Raudenbush & Bryk, 2000):

**Level-1 Model (item)**

Perceived Psychological Contract Obligation = $\pi_0 + \pi_1 \ast \text{dept\_dummy} + E$

**Level-2 Model (individual)**

$\pi_0 = \beta_{00} + \epsilon_0$

$\pi_1 = \beta_{10} + \epsilon_1$

where dept_dummy is a dummy coded variable coding department items as 1 (i.e., legitimate department obligations) and both peer and new items as 0, and $E$ and $R$ are error terms. To test this hypothesis, the key parameter was $\beta_{00}$ because it indicates a greater than chance probability that an item was endorsed as a departmental obligation even though it was not actually a departmental obligation. This parameter was 0.32 ($SE = 0.03$, $df = 60$, $p < 0.01$), indicating that a non-department item had a 32 percent chance of being identified as a psychological contract obligation. Thus, Hypothesis 1 was supported.

Hypothesis 2 posited that for the bogus items, those in the experimental condition that had been exposed to the items would be more likely to incorporate the items into their psychological contracts. A Bernoulli distribution was used to test this hypothesis because the dependent variable was dichotomous and the test involved a relative
difference as opposed to a deviation from zero (e.g., Hypothesis 1) The hypothesis was
tested using the following models:

Level-One (Item) Model:

\[
\text{Prob} (Y=1 \mid \beta ) = \pi \\
\log \left[ \frac{\pi}{1-\pi} \right] = \pi_0 + \pi_1*(\text{Peer\_dummy}) + \pi_2*(\text{New\_dummy})
\]

Level-Two (Individual) Model

\[
\pi_0 = \beta_{00} + \beta_{01}*(\text{Condition}) + R_0 \\
\pi_1 = \beta_{10} + \beta_{11}*(\text{Condition}) + R_1 \\
\pi_2 = \beta_{20} + \beta_{21}*(\text{Condition}) + R_2
\]

where level-one dummy variables identified peer and new items, respectively.

For this model, the condition coefficient for peer items should significantly relate to the
probability of identifying peer items as psychological contract obligations for the
dichotomous measure. However, the coefficient was not significant, \( \beta_{11} = 0.87 \) \( (SE = 0.71, df = 59, ns) \). Likewise, using the Likert-type measure of obligations and a normal
distribution the \( \beta_{11} \) was a non-significant 0.12 \( (SE = 0.28, df = 59) \). Thus, Hypothesis Two
was not supported

For elements which participants identified as psychological contract obligations,
Hypothesis 3 proposed that participants would make mistakes in identifying a
departmental agent as the source of the items. Thus, source response for each item was
coded 1 indicating a departmental source (e.g., experimenter) or 0 indicating other
sources (e.g., peer) and the following HLM models were used to test the hypothesis.
Level-1 Model (item)

\[ \text{Source Response} = \pi_0 + \pi_1 \ast (\text{dept\_dummy}) + E \]

Level-2 Model (individual)

\[ \pi_0 = \beta_{00} + R_0 \]
\[ \pi_1 = \beta_{10} + R_1 \]

Again, \( \beta_{00} \) was the key parameter and it was significant, \( \beta_{00} = 0.30 \) \( (SE = 0.04, df = 60, p < 0.01) \). That is, non-department items had a 30 percent chance of being endorsed as department items.

Next, it was expected that it was more likely for those in the department condition to identify the department as the source of peer obligations than participants in the control condition. Because there was not a condition effect for the perceived psychological contract obligation of peer items, it was unlikely that a condition effect would be found in relation to peer items on source response; nonetheless, similar models were developed:

Level-One (Item) Model:

\[ \text{Prob} (Y=1 \mid \beta) = \pi \]
\[ \log [\pi/(1-\pi)] = \pi_0 + \pi_1 \ast (\text{Peer\_dummy}) + \pi_2 \ast (\text{New\_dummy}) \]

Level-Two (Individual) Model

\[ \pi_0 = \beta_{00} + \beta_{01} \ast (\text{Condition}) + R_0 \]
\[ \pi_1 = \beta_{10} + \beta_{11} \ast (\text{Condition}) + R_1 \]
\[ \pi_2 = \beta_{20} + \beta_{21} \ast (\text{Condition}) + R_2 \]

The level-two condition effect only approached significance \( \beta_{11} = 1.24 \) \( (SE = 0.65, df = 59, p = 0.06) \). Thus, Hypothesis 4 was not supported.
Hypotheses 5a and 5b were designed to assess the downstream impact of identifying bogus obligations as part of the psychological contract. Because of the minimal variance in the response to the dichotomous measure of psychological contract breach noted above, the yes/no measure could not be used for the analysis and only the Likert-type measure was used to analyze Hypothesis 5.

Hypothesis 5a stated that individuals rating the bogus obligation as part of their psychological contract are more likely to report a breach to their contract. Analysis of the breach ratings revealed no significant relationship between perceived psychological contract obligation (M = 1.77, SD = 0.31) and psychological contract breach (M = 1.54, SD = 0.50), $F(2, 58) = 1.38, p = 0.26$. In this case, the likelihood of making a Type II error was 0.71; thus, power was 0.29.

Hypothesis 5b stated that individuals rating the bogus obligation as coming from the department will be more likely to report breach to their contract. Analysis of Hypothesis 5a revealed no significant difference between the three groups in reporting of a psychological contract breach $F (2, 58) = 0.28, p = 0.76$. Note the likelihood of making a Type II error was 0.91; thus, power was 0.09.

Analysis of Psychological Processes

Considering Hypothesis 4 in terms of the source monitoring literature, researchers in this area (e.g., Batchelder & Riefer, 1990) would argue that there are two cognitive processes at work when making a source identification decision. Specifically, participants must first recognize the item and then make a decision as to the source of the item. Figure 3 represents the proportion of correctly identified department and peer statements conditional on correct recognition. In the source monitoring literature, this proportion is
referred to as the “single-source conditional source identification measure or CSIM” and
is calculated by identifying the number correct for each source respectively and the
number of source responses given as either of the two sources that would indicate
recognition (i.e. A & B; not new). Based on Table 3, the formulas for the CSIM are as
follows:

\[
CSIM_A = \frac{Y_{11}}{Y_{11} + Y_{21}}
\]

\[
CSIM_B = \frac{Y_{22}}{Y_{21} + Y_{22}}
\]

Figure 3
Proportion of Correctly Identified Items for Each Source When the Item is
Correctly Recognized as Old.
A test of these conditional source identification measures revealed participants made significantly more mistakes when attempting to identify the source of peer items (39.1%) than department items (100%), $X^2 (1, N = 75) = 38.92, p < 0.001$.

However, as noted above, Batchelder and Riefer (1990) caution researchers drawing conclusions regarding the accuracy of source memory based on descriptive statistics and tests of proportions. That is, by using such analyses it is not clear whether errors are due to actual memory processes or other biases in decision making (i.e. guessing). Thus, to consider the role of source memory in response to the source identification items, analysis of Hypothesis 4 was followed by a multinomial modeling analysis. Table 7 shows the frequency of responses based on condition to each pair of source items and Figures 1 and 2 (one for each condition) represent the multinomial modeling process trees for source monitoring developed by Batchelder and Riefer. Data could be fit to the two condition models jointly or one condition at a time. Preliminary analysis suggested that the best fit for the current data would be to exam each condition separately. Thus, the figures each have seven parameters and the table only 6 degrees of freedom. Because at this point, the models are unidentifiable, Batchelder and Riefer (1990) suggest seven variations of the model restricting different parameters or combinations of parameters in order to fit the data the model. Additionally, they provide guidelines regarding which restrictions are best to use based on your appropriate situation.
Table 7
Grouped 3 x 3 Data Table of Item Source and Source Identification Response.

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Department</td>
<td>Peer</td>
</tr>
<tr>
<td>A</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>27</td>
<td>1</td>
</tr>
</tbody>
</table>

As defined by Batchelder and Riefer (1990), the decision on which model is most appropriate for a given situation can be made by first determining if the overall detection rates \(D_1, D_2\) are equal between source A and source B, which in this case refers to department items and peer items, respectively. This can be tested by performing a chi-square test of independence on the row marginals \(Y_1\) and \(Y_2\) in Table 3). This analysis revealed a significant difference in detection rates for departmental items versus peer items \(\chi^2 (1, N=106) = 51.66, p < 0.001\) across conditions. Similar results were found within conditions where there was a significant relationship between the type of item and response \(\chi^2 (1, N=57) = 35.53, p < 0.001\), and in the experimental condition \(\chi^2 (1, N=49)\)
= 17.16, \( p < 0.001 \). When the overall recognition of items from one source is significantly different from the recognition of items from the second source as confirmed by the test above, Batchelder and Riefer recommend the use of two different restricted models (6c or 5c). The first restricts the guessing parameters where \( a=g \) and the second fixes both the guessing parameters and the discrimination parameters.

Attempts to fit the data from each condition to its multinomial modeling processing tree did not result in a fit for either condition at the alpha = .05 level for the experimental condition \( G^2 = 3.99, df = 1, p < 0.05 \) or the control condition \( G^2 = 11.96, df=1, p < 0.001 \). Multinomial modeling researchers warn that conclusions regarding model parameters should not be made if the data does not fit the underlying models. The current fit statistics were obtained using model 5c, where both the discrimination parameters were set equal to one another and the guessing parameters were set equal to one another. Varying these restrictions could potentially change the parameter estimates and allow the researcher to draw additional conclusions regarding the nature of the difference in source identification for department versus peer items. However, without the appropriate fit statistics such conclusions may not be valid. That is, the likelihood estimates suggest a problem with the assumptions underlying the analysis. In fact, similar Chi-square values were obtained for the saturated models, indicating underlying problems with the data. Nevertheless, the parameter estimates generated for these models are listed in Table 8. Issues underlying the current analysis are discussed later in the paper.
Table 8
Parameter Estimates by Condition for Multinomial Models.

<table>
<thead>
<tr>
<th>Condition</th>
<th>D1</th>
<th>D2</th>
<th>a1</th>
<th>b1</th>
<th>d1</th>
<th>d2</th>
<th>g1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>0.72</td>
<td>0.12</td>
<td>0.91</td>
<td>0.39</td>
<td>0.99</td>
<td>0.99</td>
<td>0.90</td>
</tr>
<tr>
<td>Control</td>
<td>0.83</td>
<td>0.0001</td>
<td>0.90</td>
<td>0.31</td>
<td>0.87</td>
<td>0.87</td>
<td>0.90</td>
</tr>
</tbody>
</table>

*Post-Hoc Analyses and Auxiliary Hypotheses*

The above results led to further inspection of the raw data, which revealed interesting patterns that were not hypothesized, but should be considered. For example, responses by item to the psychological contract obligation statements are listed in Table 5. Evaluation of these frequencies revealed, that participants responded “department” to item 5 a total of eight times whereas they responded department to item 6 a total of 35 times; yet, these two items were both new items. This difference may be explained by a qualitative difference in terms of the party that each item favored. In order to accurately portray the department-participant relationship, when possible, items were designed so that one item from the source favored the student and the other favored the department. That is, the nature of these items could have been seen as more beneficial to one party over the other. (Note that this property did not vary for bogus peer obligations for ethical
reasons.) It follows that an individual would find those items that benefited oneself as more favorable and be more likely to include them in their psychological contract. An auxiliary hypothesis tested for effects of item benefit. Specifically, it was hypothesized that individuals would be more likely to report items as part of the psychological contract if the item would benefit the participant.

For departmental items, perceived psychological contract obligation response is independent of whether the item benefits the student or the department, \(X^2(1, N=122) = 0.09, p = 0.77\). However, for the new items, perceived psychological contract obligation response is dependent on the party that will benefit from the item, \(X^2(1, N = 120) = 35.556, p < 0.001\), Odds Ratio (O. R.) = 5.00 with participants responding “yes, the item was promised to them” 66.7% of the time when the item would benefit the student and 13.3% of the time when the item would benefit the department. Similar analyses cannot be performed on the peer items because both of the student items would be categorized as student benefit.

In addition to considering perceived psychological contract obligation in terms of who the item favored, I also considered whether there was a relationship between whom the item favored and source identification response. For departmental items, source identification was not contingent upon whom the item benefited, \(X^2(2, N = 122) = 0.29\) \(p = 0.59\). A review of the response pattern for new items revealed that there were only two instances when a participant responded “peer” to either of the two new items. These two responses cannot be explained; therefore, were removed from the analysis. Thus, for new items, participants are more likely to respond department to new items that benefit the
student (60%) than to new items that benefit the department (26.7%), $X^2 (2, N = 120) = 13.58 \ p < 0.001$, O.R. = 2.25.

Finally, post hoc analysis revealed instructors were viewed as having the highest expertise regarding the experiment research program (M = 4.19) followed by the experimenters (M = 3.97) and peers (M = 2.96). These means are significantly different, $F (2, 61) = 83.00, \ p < 0.001$. Specifically, peer expertise is significantly lower than instructor expertise, $t (120) = 10.00, \ p < 0.001$, peer expertise is significantly lower than experimenter expertise, $t (120) = -9.24, \ p < 0.001$, and instructor expertise is significantly higher than experimenter expertise, $t (120) = 3.44, \ p = 0.001$. Trust for the three sources followed the same pattern with instructors being reported as the most trustworthy regarding the research program (M = 4.16), followed by experimenters (M = 3.98), then peers (M = 3.64). These means are also significantly different, $F (2, 61) = 23.66, \ p < 0.001$. Post-hoc analysis revealed a significant difference between trust of peers and trust of instructor, $t (120) = -6.56, \ p < 0.001$, where peers were reported as less trustworthy than instructors. Similarly, trust of peers was lower than trust of experimenters, $t (120) = 4.64, \ p < 0.001$. Finally, trust of instructor was significantly higher than trust of experimenter, $t (120) = 2.35, \ p < 0.05$.

Discussion

The purpose of this study was to investigate the psychological contract formation process, problems that may arise during the process, and possible consequences in terms of psychological contract violations. Previous empirical investigations of psychological contracts have mainly focused on the occurrence and outcomes of psychological contract
breach and violation. Yet, a better understanding of such violations may lie in understanding errors that can occur during psychological contract formation.

In particular, this study moved beyond the correlation studies done using MBA students to investigate the psychological contract and investigated the psychological contract formed between the psychology department and students involved in a psychology department research program. Specifically, a situation in which peers (i.e. confederates) discussed potential psychological contract obligations in front of other study participants to see if those participants would use that information in forming their own psychological contract. Results suggest that students indeed formed psychological contracts surrounding a department-participant relationship based on information not provided by the department. Additionally, when asked to identify the source of these obligations, they sometimes made errors. Yet, participants who had previously heard the obligations from peers did not make significantly more mistakes in source identification than participants in the control condition, nor were they more likely to identify the obligations as psychological contract obligations.

Finally, the study attempted to determine if errors in source misattribution led to an increase in reported psychological contract violations. However, no support for this hypothesis was found, though this likely due to few recognizing breaches in obligations (bogus or otherwise).

*The Department-Participant Relationship*

Consistent with Rousseau’s (1995) theory that psychological contracts evolve out of any dyadic relationship, the present study revealed that students do form psychological
contracts regarding the department-employee relationship in the experimental research program. Additionally, the study confirmed that participants do include items from sources other than the new employer as part of their psychological contract. This is consistent with psychological contract theory suggesting the perceived psychological contract obligations come from a variety of sources including job advertisements, information from coworkers, and pre-existing beliefs (Rousseau, 1995; Schein, 1980).

However, the study failed to provide evidence that participants who were exposed to potential items from peers are more likely to include those items in their psychological contract. This lack of significant statistical differences between the experimental and control groups in terms of including the bogus peer items in the psychological contract could be explained by the low statistical power or a weak manipulation. However, there are potential theoretical explanations that also may account for this finding. Interestingly, in some instances those in the control condition included the bogus obligations in their psychological contracts when they were not presented in their condition. Additionally, participants in both groups included “new” items in their psychological contracts at least 32% of the time. Thus, it may be interesting to take a closer look at these items.

Assuming the participants made their decisions based strictly on memory for an item, all participants should have responded “no” to whether or not the new items were promised to them by the department. However, if participants rely on pre-existing beliefs to make their decisions and identify the new items as part of the psychological contract then they should reason that they came from a departmental agent, thus, making a mistake.
As indicated above, Table 5 presents the frequencies with which participants responded to the six obligations used in the study. Note that item 5 was identified as part of the psychological contract 8 times and on all 8 of these occasions was attributed to the department while item 6 was identified as part of the psychological contract 41 times and for 35 of these it was attributed to a departmental agent. As indicated by the auxiliary analysis above, item 5 is an item that would favor the organization while item 6 would favor the department. Thus, participants appear bias in including items that will benefit them in their psychological contract more than items that benefit the employer when the items have not been objectively presented by an organizational representative.

Of course, this effect may reflect other differences between the items. For example, close analysis of these obligations revealed wording differences in item 6 and the others. That is, item 6 uses promised rather than obligation. Note that in the instructions participants were told only to think of those obligations which they were promised; however, this item was the only obligation worded this way within the text of the survey. Future research designed specifically to address the question of who the obligation favors and wording distinctions between items that use the term promise versus obligation is needed to further examine this issue.

Additionally, further review of item 6 revealed responses may have been based on an individual’s interpretation of the term “studies.” That is, if the participants considered studies as a general term meaning “opportunity” it may be the case that the item could be reasonably inferred as an obligation of the department. That is, though not written in any of the documents regarding the department-participant relationship, it is reasonable to expect that this were true. That is, if the department is making a research requirement part
of the curriculum, it seems they would be expected to provide the student the opportunity to earn the credit. Additionally, the department allows students the opportunity to earn credit through writing journal reviews as well as participating in the research program. Thus, it provides the opportunity for students to earn enough credits for their requirement.

*Source Identification and Memory for Source*

Participants in the study were also asked to make source identifications. The researcher predicted that participants would make mistakes in identifying the source of items they believed to have been promised by the organization and in fact, participants exhibited a 30% chance of responding “department” to a non-department item. The difference between the experimental and control conditions in making source responses approached significance, which may suggest a difference in making source decisions based on whether an item was objectively presented to an individual or not. However, perhaps due to the relatively low frequency, specific assessments of the role of memory in this process were inconclusive.

Specifically, to deal with source memory, a multinomial model designed to test source memory was considered. Although, the model fit was unsuccessful. That is, the data collected during the current study was not explained by the traditional source monitoring model; thus, specific hypotheses regarding differences in source identification between the two conditions could not be tested by comparing source identification parameters. Recognizing that the interpretation of parameters in such cases must be done with caution, it is interesting to point out that the “a” parameter for both conditions
suggests a 90% probability that participants would guess organization when they had correctly recognized an item as old. Perhaps, suggesting that participants use reasoning to endorse department rather than misremembering the presented information.

Riefer, Hu, & Batchelder (1994) discussed the importance of researchers understanding the response strategies used by participants in order to understand whether participants are responding based on memory or some type of response bias. It appears that participants in this study are responding in accordance to Bayen et al.’s (2000) guessing hypothesis. This hypothesis suggests that participants show a bias in guessing consistent with previous schema regarding a source. That is, it is possible that the participants believed the obligation was part of their psychological contract and, by definition, these items were promised by the organization. If participants could not accurately recall the source of the information, it would follow that they would guess a departmental source simply because if they indicated it was promised to them from the department they would reason that the promise came from a departmental source; thus, fitting their psychological contract belief systems. In addition, review of the source credibility measures, shows that participants reported that instructors and experimenters were more trustworthy and held more expertise regarding the experimental research program than one’s peers. Hence, when asked the source of an obligation, participants indicated a source that they found credible.

The author predicted that misremembering would be the explanation for participant’s failure to accurately identify the source of the statements in the current study. However, the models presented by Batchhelder and Reifer do not explain what was going on when participants answered the source identification questions. Thus, there
may be underlying problems which does not allow for accurate source monitoring analysis of the current study.

This problem may be explained by the design of the study. That is, traditional source monitoring studies are lab studies in which the sources statement (in this case obligations) can be randomly assigned to each of the three sources (A, B, or new). Due to the applied nature of the current study, the researcher was unable to randomly assign the obligations to a source (i.e. department, peer, new). Such random assignment may have required organizational agents to provide participants with incorrect information regarding the department research program. This would not have been logistically possible or ethical in this applied setting. Such random assignment may also have required the peer obligations to be true of the department-participant relationship and had this been the case, the researcher would not have been able to track the source of the obligations. That is, the researcher would not have been able to determine if the correct response to the source identification question was “peer” or “department.” This design issue may have been what resulted in an inability to truly analyze the participant’s memory for source.

Additionally, in a traditional source monitoring study, participants are presented with both source A and B items during the same experimental session; however, again due to the applied nature of this study, participants do not necessarily learn both department and peer items at the same time. For example, the consent forms indicate that participants can quit at any time; however, it does not say that the participant is obligated to show up for or cancel any study for which they are signed up. This is an item from the document describing the participant experience. Receiving the different pieces of
information at different times and in different modes (through written means or verbally) may have affected participants encoding of the information. For example, reading in the consent form that one may quit at any time, may have been more deeply processed than simply hearing a peer make a comment about the experimental research program while waiting for a study. These methodological issues should be considered in future studies. Thus, to accurately determine the role of memory in this process, a traditional lab study might be needed rather than a study that uses an applied sample that limits the researcher’s ability to manipulate the experimental design. Then the researcher could possibly fit the multinomial models and perform specific tests of the source monitoring parameters.

Alternative Explanations

An alternative explanation to the large number of items identified as part of the psychological contract and as having come from the department (even when they were not presented by either source) is one of social desirability felt by the participants to respond how they “think” the experimenter wanted them to respond. The participants received an email directly from a department representative (the researcher) asking them to provide feedback regarding the research participation program. Though the participants were getting credit for taking the survey and were told the only reason that email addresses were collected was to give them credit, it is possible that they had a tendency to answer in terms of what might be more desirable to the organization. Or perhaps, the participants felt that the experimenter would not be asking about potential items had they not been presented and did not want to be identified as having missed
some piece of information they were to pay attention to during a study. Therefore, the validity of this data depends on the truthfulness of the participants. This alternative explanation would have been easier to rule out had the bogus information manipulation shown an effect. Unfortunately, because it did not, this alternative is very possible.

*Psychological Contract Violation*

In terms of psychological contract violation, the current study failed to show any variation in the dichotomous measure of psychological contract obligation. That is, only one participant responded “yes” to the item “This quarter, did the psychology department fail to meet any of the obligations promised to you?” This participant in question was in the control group, therefore, did not receive the psychological contract violation manipulation in the current study. Additionally, the participant provided no additional information in any of the open-ended questions within the web survey; therefore, the nature of the violation report cannot be discussed further. Furthermore, when considering the distribution and scale of the Likert-type measure of psychological contract violation, the mean psychological contract violation rating was 1.53 with a standard deviation of 0.52. Recall, the scale used: 1. strongly disagree, 2. disagree, 3. neutral, 4. agree, 5. strongly agree. Using this scale, this mean and a standard deviation indicated a range of 1 to 3, indicating that no participant reported agreeing with any of the violation statements. Thus, any variance was between those that strongly disagreed, disagreed, and were neutral in terms of reporting contract violations. This lack of variance in the psychological contract violation measure could be explained on theoretical or methodological grounds.
From a theoretical perspective, the relationship between department and participant is primarily transactional. That is, except in the case of participants that are psychology majors and may work with experimenters or departmental agents in the future, the relationship between the department and participant is primarily a short term one. Each of the parties is likely to be interested in receiving what the other has promised to provide (i.e. research participation or research points) and in less than three months time, the relationship is terminated. In this relationship, there are no beliefs regarding long-term requirements on either party. Recall, descriptive statistics for the majors of the participants reflect a majority of participants that are undecided on their major; thus, it is likely that participants did not consider the department-participant from a long-term perspective. Researchers suggest that in such short term relationship, the obligations are more defined and the participants are less likely to report psychological contract violations (Rousseau, 2001).

However, the lack of reported psychological contract violations may also be considered a manipulation check indicating that the psychological contract violation manipulation designed for the study did not work. In terms of the first bogus obligation (if the experimenter is late, the participant will receive an extra research credit), the manipulation was for the experimenter to be approximately 8 minutes late. This may have not disturbed the participants in the study for a number of reasons. First, the study took place at a university where all classes begin at 10 after the hour; thus, the strength of the manipulation may have been affected by the participant’s lack of considering 8 minutes after the hour “late.” Secondly, during the first session, the experimenter delayed the start of the study waiting on a participant (that would never arrive) in order for the
confederates to interject the bogus obligations. This delay beginning on the hour for the first session may have resulted in a lack of attention to the fact that the experimenter was late for the second session.

Practical Implications

Among the most important practical implication emerging from the results of the current study is the confirmation that newcomers hold psychological contracts regarding even short-term transactional relationships and they can confuse the source of information regarding their new contract. This is an important piece of information for employers to understand and perhaps highlights the need for further understanding of communication within the employment environment.

In addition, it may help both employers and employees to better understand the contractual nature of the employment relationship, as well as the potential for change in the relationship. As technological and industrial advancements change the nature of the way organizations run, it may be useful for employers to emphasize the changing nature of their organizations to their employees. It used to be that organizations could make long-term promises to employees and that may not currently be the case. Thus, both parties in the employment relationship need to understand the contractual nature of the relationship in this changing environment.

Future Research

The current study highlights future directions for research in psychological contract formation. First, it highlights the importance of further examining the process;
that is, scientists and practitioners cannot expect to understand the effects of a construct (e.g., psychological contract violations) if they do not first understand how these contracts are formed. Based on the unintentional wording difference in the psychological contract obligation measure, it may be useful to design a study in which the researcher can examine individual’s perspectives and differences in expectations versus obligation, versus promised wording. Such a study may lead to an advancement in the understanding of the psychological contract from a promise perspective as called for by Rousseau (2001) or suggest that psychological obligations are no more than expectations as suggested by Guest (1998). Beyond the scope of this study, the distinction between psychological contract obligations and general expectations is an important one in order to further our understanding of either construct.

Next, in terms of the role of memory for source for obligations incorporated into the psychological contract, a more stringent laboratory study should be designed. In the case of the present study, the researcher had hoped to take advantage of the external validity of using an applied sample; however, as noted in the methodological discussion this resulted in a number of variations from the traditional source monitoring study (e.g. the inability to use random assignment of obligations). Such, variations may have resulted in the inability to draw accurate conclusions as to the role of forgetting in psychological contract formation. A future study may need to exchange the generalizability of using an applied sample for the internal validity of a laboratory study that will allow for manipulations that would not be ethically possible in an applied setting.
Finally, future research should investigate the evaluative nature of psychological contract obligations and whether items that will benefit the employee are more likely to be incorporated into the psychological contract. This area may have important connections to social psychological literature on rumors and may have important practical implications for how employers handle information that is rumored to be flowing through the organization to which the employer knows that there is or is not any objective truth.

In conclusion, as organizational researchers we often seek to determine the factors underlying organizational problems and issues (i.e. the source of the problem). Yet, in the investigation of psychological contracts, we have failed to seriously consider the source. This study was an attempt to do so.
References


organizational psychology. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology*. Chicago: Rand McNally.


insights for employment relationship theory, In J. A-M. Coyle Shapiro, L. M.


the interaction between episodic and semantic memory. *Psychological Science, 10*, 106-110.


Study Name: Considering a Classic Memory Experiment: A Recognition Perspective

Detailed Description: In this study, the researcher seeks to understand recognition memory over time. This study will consist of two sessions. In the first session, I will be asked to study a list of information and my memory for the list will be tested. In two weeks, I will return for a second session during which my memory for the list will be tested again. I will then have another opportunity to learn the list following which I will take an additional recognition test.

Eligibility Requirements: None

Credits/Pay: 2 credits
Preparation: None

Researcher: Kristen M. More

IRB Approval Code:
Appendix B

Protocol Session One-Pseudo-Study

Arrival Script:

Experimenter: Are you here for the study? This is a consent form. If you would read through it, there is a place for you to sign on the back, let me know if you have any questions. Additionally, here is your participant folder, please do not open it until you are instructed to do so. And when you are finished if you would write your email address and the participant number that is on your folder on this sign in sheet. Please take a seat and we will begin when everyone arrives.

Once all participants and the two confederate participants had arrived, the experimenter began. In the event, not all true participants arrived on time, the experimenter began at 10 minutes after the hour.

*Experimenter:* Ok, we are waiting on one more participant. I am going to give them a few minutes to arrive. A lot of people are on “OU time” and think studies start at 10 after the hour like classes do. For now, please read over and sign your consent form while we are waiting for the last participant.

The experimenter then walked into the hall as if they are looking for the final participant. This gave the confederates an opportunity to make small talk and interject the bogus psychological contract elements.

*Confederate A:* So, how has your quarter been going for you?

*Confederate B:* Oh it is really busy, how about you?

*Confederate A:* The same too much work and no time to do it.
Confederate B: I feel you on that.

(Control Condition B: What are you up to this weekend?)

Confederate A: So, is this your first experiment?

(Control Confederate A: Oh I think I am going to see a movie with Dustin.)

Confederate B: Yeah, it’s my first one how about you?

(Confederate B: That looks like its going to be a funny movie.)

Confederate A: I did the basketball study, it was real short.

Confederate B: Really? Maybe I will do that one. I need to get these points done soon.

(Confederate A: Yeah, I’m excited to see it. What are you doing this weekend?)

Confederate A: Me too. Hey, I heard if the experimenter was late to a study, you get an extra point.

Confederate B: Really? That would be sweet. It would help out in getting these points done.

(Confederate B: Homework, and I’m working Saturday night.)

(Confederate A: Yeah I know, because it seemed a lot of the studies were male only studies.)

Confederate B: I saw that too, but I thought they couldn’t do that. Isn’t there some federal law or something that prohibits that and makes them offer the study for both makes and females?

Confederate A: I’m not sure, but they should.

(Experimenter returns)
The experimenter returned to the room, collected the consent forms, and began the pseudo-study.

**Experimenter:** Well, you have waited long enough. I am not going to wait any longer. Let’s get started. I first need to read you a brief protocol and then we will begin. Once the study begins it should take approximately 18 minutes.

The experimenter then began reading the script.

**Experimenter:** Hermann Ebbinghaus is known as one of the founders of experimental psychology and for having conducted the first rigorous experimental investigation of human memory. Ebbinghaus wanted to study memories that were built from zero strength. That is, there was no memory of the information prior to learning. So, he developed a list of nonsense syllables pairing any two consonants with a vowel in order to find a large number of one-syllable words that were not truly “words” defined in his language. He then used these words as materials in a series of studies. However, Ebbinghaus did not have access to a subject pool, so for all of his studies he was his own participant. He would sit in his room, select a list of nonsense syllables, and recite them over and over until he made no mistakes recording how many trials it took for him to do this. Then after varying time delays, Ebbinghaus would go back to the lists and determine how many trials it would take to “rememorize” the list. The difference between the number of trials that it originally took Ebbinghaus to memorize the material and the number of trials it took him after the time delay became known as the savings. In other words, if it took him 10 trials to memorize the list the first time and 5 trials the second time, then there is a 50% savings. If there was no difference in the number of trials it took, then there was no savings and he might as well not have memorized the words in
the first place. Ebbinghaus’ studies have been replicated in a variety of conditions with both groups and individuals. Though his studies used non-sense materials and only one participant, they led the way for other memory researchers such as Bartlett who later studied memory for meaningful information.

In today’s session and the follow up session you will participate in a study similar to that of Ebbinghaus. In particular, what has not been examined as extensively is the influence of time in savings. That is, researchers have not examined the effects of various delays between memorization sessions. In just a moment, I will project a list of 20 nonsense syllables up on the screen. It is your goal to memorize this list. You will have three minutes and then you will be asked to take a recognition test. We will repeat this process three times. Then you will be done for today. You will come back in two weeks for a follow up session. At that time, we will determine how many of the nonsense syllables you have retained and repeat the process to determine the level of savings based on your initial memorization experience.
Appendix C

Psychological Contract Violation Manipulation
“Pseudo-study”

This study appeared on the main screen of the psychology web sign up system. Participants were not actually able to sign up to participate in it (i.e. it was not a real study).

Study Name: Creative marketing techniques in sports management.

Detailed Description: This study was designed to assess the marketing techniques used by various sports teams. In this study, the researchers are interested in what cues marketing professionals can use to increase the number of tickets sold to major sporting events. The researcher is looking for MALE PARTICIPANTS ONLY.

Eligibility requirements: MALE PARTICIPANTS ONLY

Credits/Pay: 1 credit

Researcher: Jerome Stryker

IRB Approval Code: 05X256
Web Survey Recruitment Email:

Dear Participant:

Thank you for participating in the psychology experiment program this quarter. Now that you have earned at least two research points for participating in the program, you are eligible to earn one additional point by completing a short web survey. By completing this survey, you will not only earn an additional research credit toward your course requirement, but also provide us with valuable feedback regarding your experience participating in the psychology department research program.

Please be assured that all responses will be kept confidential. Email addresses will be collected only for the purpose of giving you proper course credit.

The survey should take approximately 20 minutes to complete and you will be awarded your course credit upon completing it.

Finally, we ask that even if you have completed your required course credits that you still complete the survey as this feedback is important to us.

Please feel free to contact me if you have any questions.

Kristen M. More
Km143903@ohio.edu
Appendix E

Web Survey

1. Participating in the experimental research program was a good learning experience.
   Strong Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

2. It is important for students to understand the experimenter-participant relationship.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

3. Ohio University should be a leader in psychological research.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Disagree

4. I intend to participate in experiments only until I have earned the four required experiment points.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

5. I intend to participate in experiments for extra credit points.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree
6. I would consider participating in the research participation program even if it were not required.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

7. I am interested in pursuing a career in psychology.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

8. I would stay and participate in addition experiments/studies for an experimenter given I had the time in my schedule.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

9. I have NOT received everything promised to me in return for my contributions in the research participation program.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

10. All of the promises made to me by the department in the research participation program have been kept.
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree

11. I feel that the department has violated the contract between us.
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
12. I feel let down by the psychology department.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

13. I feel the department did what they could to ensure the promises made to me were kept.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

14. I feel deceived by the psychology department.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

15a. This quarter, did the psychology department fail to meet any of obligations promised to you?
   Yes
   No

15b. If yes, what promises/obligations were not upheld, please explain:
   ______________________________________________________________
   ______________________________________________________________
   ______________________________________________________________

S. For each of the elements below please answer yes or no indicating whether the element was promised to you by the psychology department or something that you promised to the department in exchange for your participation in the experimental research program.

16a. The department is obligated to allow me to quit any study in which I do not feel comfortable.
   Yes
   No
16b. If yes, please specify the source of this promise. That is, where did you learn this information?
   Professor/Instructor
   Experimenter
   Another Participant
   Document describing experiment requirement
   Not Presented (I never heard this)

17a. I am obligated to show up for the sessions for which I sign up.
   Yes
   No

17b. If yes, please specify the source of this promise. That is, where did you learn this information?
   Professor/Instructor
   Experimenter
   Another Participant
   Document describing experiment requirement
   Not Presented (I never heard this)

18a. When the experimenter is late, the department is obligated to give me an extra experimental point.
   Yes
   No

18b. If yes, please specify the source of this promise. That is, where did you learn this information?
   Professor/Instructor
   Experimenter
   Another Participant
   Document describing experiment requirement
   Not Presented (I never heard this)

19a. Experimenters are obligated to allow both males and females to participate in their studies.
   Yes
   No

19b. If yes, please specify the source of this promise. That is, where did you learn this information?
   Professor/Instructor
   Experimenter
   Another Participant
   Document describing experiment requirement
   Not Presented (I never heard this)
20a. I am obligated to participate in studies for which I took the pre-test.
   Yes
   No

20b. If yes, please specify the source of this promise. That is, where did you learn this information?
   Professor/Instructor
   Experimenter
   Another Participant
   Document describing experiment requirement
   Not Presented (I never heard this)

21a. The department has promised to provide enough studies in order for participants to earn their required points.
   Yes
   No

21b. If yes, please specify the source of this promise. That is, where did you learn this information?
   Professor/Instructor
   Experimenter
   Another Participant
   Document describing experiment requirement
   Not Presented (I never heard this)

S. For the following items, please to identify the extent to which the department was promised to provide you (the participant) or you promised to provide the department in exchange for participating in the experimental research program.

22. The department ensures that I am not obligated to participate in a study in which I do not feel comfortable.
   Not at all
   To a little extent
   To a moderate extent
   To a great extent
   Very great extent

23. I am obligated to show up for the sessions for which I sign up.
   Not at all
   To a little extent
   To a moderate extent
   To a great extent
   Very great extent
24. When the experimenter is late, the department is obligated to give me an extra experimental point.
   Not at all
   To a little extent
   To a moderate extent
   To a great extent
   Very great extent

25. Experimenters are obligated to allow both males and females to participate in their studies.
   Not at all
   To a little extent
   To a moderate extent
   To a great extent
   Very great extent

26. I am obligated to participate in studies for which I took the pre-test.
   Not at all
   To a little extent
   To a moderate extent
   To a great extent
   Very great extent

27. The department has promised to provide enough studies in order for participants to earn their required points.
   Not at all
   To a little extent
   To a moderate extent
   To a great extent
   Very great extent

28a. One concern is the degree to which department policies are clearly communicated to students. Did you ask for clarification regarding one or more department policies regarding the experimental research program?
   Yes
   No

28b. If yes, please describe what you asked about, who you asked, and what they said

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
29. I feel my peers (other study participants) are extremely trustworthy.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

30. I believe my peers are telling me the truth as they see it regarding what they
   know about the participant-department relationship.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

31. I feel my peers are not honest with me.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

32. My peers really know a lot about the experimental research program.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

33. I believe my peers to be an extremely credible source of information about the
   experimental research participation program.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree
34. My peers really know what they are talking about when it comes to the experimental research program.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

35. I feel my instructor is extremely trustworthy.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

36. I believe my instructor is telling me the truth as they see it regarding what they know about the participant-department relationship.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

37. I feel my instructor is not honest with me.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

38. My instructor really know a lot about the experimental research program.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

39. I believe my instructor to be an extremely credible source of information about the experimental research participation program.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree
40. My instructor really knows what they are talking about when it comes to the experimental research program.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

41. I feel the experimenters are extremely trustworthy.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

42. I believe the experimenters are telling me the truth as they see it regarding what they know about the participant-department relationship.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

43. I feel the experimenters are not honest with me.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

44. The experimenters really know a lot about the experimental research program
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree

45. I believe the experimenters to be an extremely credible source of information about the experimental research participation program.
   - Strongly Disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly Agree
46. The experimenters really know what they are talking about when it comes to the experimental research program.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

47. I was suspicious as to the true nature of the studies I participated in.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

48. I was suspicious as to the true nature of the recognition memory studies I participated in.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

49. I pay close attention to what my peers talk about during experiment sessions.
   Strongly Disagree
   Disagree
   Neutral
   Agree
   Strongly Agree

50a. I participated in a study in which the other participants acted in a strange way.
    Yes
    No

50b. If yes, what was the nature of the study?
    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________

51. Please describe any additional suspicions you had about the recognition memory study you participated in:
    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________
S. Thank you for participating and providing your feedback. Please complete the questionnaire by answering **all** of the following demographic information.

52. Sex:
   Male
   Female

53. Class Rank:
   Freshman
   Sophomore
   Junior
   Senior

54. What is your Academic Major:
   Major ____________________________

55. Which psychology course are you enrolled in this quarter (check all that apply)?
   Psy 101 A01 11:10-12:00PM
   Psy 101 A02 1:10-2:00PM
   Psy 101 A03 9:10-10:00AM Roe
   Psy 101 A04 1:10-2:00PM Weekley
   Psy 120-02 11:10-12:00PM Tice-Alicke

56. Please provide your Oak email address (for course credit purposes only)?
   Oak Email _________