RISK IN THE EYE OF THE BEHOLDER? AN EXAMINATION OF RISK EVALUATION, ROLE EXPECTATIONS AND WORKPLACE RISK-RELATED BEHAVIOR

by

OLIVER K. STOUTNER

DANIEL G. BACHRACH, COMMITTEE CHAIR

CRAIG E. ARMSTRONG
JONATHON R. B. HALBESLEBEN
JEFFREY A. MARTIN
ADAM RAPP

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Management in the Graduate School of The University of Alabama

TUSCALOOSA, ALABAMA

2015
This dissertation presents the results of three studies designed to enhance understanding of how individual risk evaluation pertains to role theory and how prospect theory can offer clues on the process undergirding the translation of employee role expectations into behavior in the workplace. In studies 1 and 2 I develop a novel scale for evaluating employee risk-related role expectations. Study 3 draws on a sample of 439 working adults and examines how coworker general (non-work-related) risk propensity affects employee’s role expectations regarding risk and expectations of coworker approval. Further, I explore the linkages between employee expectations and subsequent behavior and the influence of coworker indicated approval. Integrating prospect and role theories, I find support for the hypothesis that coworker risk propensity has a negative relationship with employee risk-related role expectations, and expectations of approval. I also find support for the positive relationship between employee risk-related role expectations and behaviors, and mixed support for the positively moderating role of coworker indicated approval. Implications for theory and practice are discussed along with directions for future research.

Keywords: Prospect Theory, Role Theory, Risk Perception, Role Expectations, Risk Behavior, Social Environment
**LIST OF ABBREVIATIONS AND SYMBOLS**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N$</td>
<td>Sample Size</td>
</tr>
<tr>
<td>$df$</td>
<td>Degrees of freedom:</td>
</tr>
<tr>
<td>$r$</td>
<td>Pearson product-moment correlation</td>
</tr>
<tr>
<td>$\beta$</td>
<td>Standardized beta coefficient</td>
</tr>
<tr>
<td>$b$</td>
<td>Unstandardized beta coefficient</td>
</tr>
<tr>
<td>$p$</td>
<td>Significance Level (unless otherwise specified)</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>Chi-square</td>
</tr>
<tr>
<td>$R^2$</td>
<td>Proportion of variance</td>
</tr>
<tr>
<td>$\sum$</td>
<td>Summation</td>
</tr>
<tr>
<td>$\infty$</td>
<td>Infinity</td>
</tr>
<tr>
<td>$\alpha$</td>
<td>Coefficient alpha (unless otherwise specified)</td>
</tr>
<tr>
<td>$I'$</td>
<td>Point of inflection</td>
</tr>
<tr>
<td>$&gt;$</td>
<td>Better than</td>
</tr>
<tr>
<td>$\leq$</td>
<td>Worse than or equal to</td>
</tr>
</tbody>
</table>
ACKNOWLEDGMENTS

I want to heartily thank all of those souls who have helped make this possible. To my dissertation chair and mentor, Dr. Daniel G. Bachrach, I thank you for your guidance, advice, gentle (and not so gentle) prodding and, most of all, your sense of humor throughout this journey. You have been my Athena on this odyssey. I would also like to thank the members of my committee Drs Armstrong, Halbesleben, Martin, and Rapp for your insights and support. And to my fellow Ph.D. students at Alabama, I have loved sharing this experience with you. What a fine group of men and women to call colleagues and friends.

Several others bear mentioning, as they have been instrumental in one way or another in helping me to this point. Dr. Jeff Edwards, thank you for your answers to my (I’m sure) silly questions on response surface analysis. Likewise thank you to Jimmy Hinson, Sam Hulick, David Kates, Clint Mansell, and Jack Wall. Your compositions safely shepherded me through many hundreds of hours of thinking, writing, and occasionally staring off into space, swept away by the moment and the music. A happy thanks goes to Professor Nariman Bomanshaw Mehta. While you may no longer be with us, your work remains and has helped me every step of the way.

Most importantly, I want to thank my beautiful family. To my mother and sister, everything that I am, you have helped me to become. Thank you. And to my dear wife Kimberly, coming home to your blithe smile and welcome arms is the sweetest of balms, even on the worst of days. My two little ones, Willa and Lulu, I hope you will soon forget the lost days and nights without daddy around to share your magic and grace. I will never forget your cries of joy and leg hugs upon my returns.
Lastly, thank you to all of those who have come before me, both mentioned herein and unmentioned, for verily *if I have seen further, it is by standing on the shoulders of giants.*
CONTENTS

ABSTRACT ....................................................................................................................... ii

LIST OF ABBREVIATIONS AND SYMBOLS ............................................................... iii

ACKNOWLEDGMENTS .................................................................................................. iv

LIST OF TABLES ............................................................................................................ viii

LIST OF FIGURES ......................................................................................................... ix

1. INTRODUCTION ....................................................................................................... 1

2. LITERATURE REVIEW AND HYPOTHESES ......................................................... 9

3. METHODOLOGY ..................................................................................................... 56

4. RESULTS .................................................................................................................. 67

5. DISCUSSION AND CONCLUSION ........................................................................... 82

REFERENCES ............................................................................................................... 91

APPENDIX A .................................................................................................................. 102

APPENDIX B .................................................................................................................. 103

APPENDIX C .................................................................................................................. 104
LIST OF TABLES

2.1 Bernoulli Lottery ........................................................................................................12

2.2 Saint Petersburg Paradox Expected Value ...............................................................13

2.3 Saint Petersburg Paradox Expected Utility .............................................................16

2.4 Summary of Anticipated Effects and Corresponding Prospect Theory Frame ...........53

3.1 Confirmatory Factor Analysis of Nested Models .......................................................61

4.1 Study 3 Means, Correlations, and Standard Deviations ..........................................68

4.2 Study 3 Path Analytic Tests of Hypothesized and Alternative Models ......................71

4.3 Results from Quadratic Regressions of Workplace Risk-Related Behavior on Risk-Related Role Expectations, Coworker Approval Expectation and Coworker Indicated Approval .....80
LIST OF FIGURES

1.1 Dissertation Model ................................................................. 8

2.1 Cumulative Expected Utility ................................................. 17

2.2 Cramer’s Expected Utility ...................................................... 18

2.3 Friedman-Savage Utility of Income Function ......................... 27

2.4 Markowitz Utility of Income Function .................................... 27

2.5 Prospect Theory Hypothetical Value Function ....................... 37

2.6 Hypothetical Probability Weighting Function for Gains ........... 39

2.7 Hypothetical Probability Weighting Function for Losses ........ 39

4.1 Response Surface for Risk-Related Role Expectations and Indicated Coworker Approval Predicting Workplace Risk-Related Behavior ................................................. 77

4.2 Response Surface for Coworker Approval Expectation and Indicated Coworker Approval Predicting Workplace Risk-Related Behavior ............................................. 78
CHAPTER 1
INTRODUCTION

“The risk of a wrong decision is preferable to the terror of indecision” –Maimonides
“Boldness, without propriety, becomes insubordination”—Confucius

Developing a deeper understanding of the nature of risk in organizations is of vital importance as scholars and practitioners alike grapple with the consequences of risky decisions (Sitkin & Pablo, 1992). Risk and its evaluation are conceptualized as assessments of the uncertainty regarding the potential for significant and/or disappointing outcomes to be realized (Sitkin & Pablo, 1992), and some of the most highly cited articles in both management and economics over the past three decades have been devoted to developing better tools for predicting individual decision making under risk and uncertainty and the consequences of those decisions (c.f. Kahneman & Tversky, 1979; Tversky & Kahneman, 1992; March, 1991; Mayer, Davis, & Schoorman, 1995; Lumpkin & Dess, 1996).

At the same time that organizations and scholars are devoting considerable resources toward the control of risk and its consequences, attention also is being focused on the development of employees’ perceptions of required aspects of their jobs (Bauer & Erdogan, 2012). This includes a focus on training (Arthur, Bennett, Edens, & Bell, 2003), leadership (Avolio, Walumbwa, & Weber, 2009), socialization, development and mentoring (Hunt &
Michael, 1983). These efforts are intended to engender employee attitudes and behaviors core to the successful enactment of work roles (Fang, Duffy, & Shaw, 2011).

The manner in which employees perceive their work role requirements can have a substantive impact on employee motivation, satisfaction, turnover and performance (Jackson & Schuler, 1985; Tubre & Collins, 2000; Fang et al., 2011). *Work role expectations* are employees’ beliefs about what is required to successfully perform within their job (Biddle, 1986; Ilgen & Hollenbeck, 1991), and these expectations encompass the activities and behaviors necessary for enactment as a part of the work role, such as task-specific and relational (social) requirements of the job (Dierdorff, Rubin, & Bachrach, 2012).

In light of the acknowledged importance of shaping employees’ role expectations, scholars investigating work design, which encompasses “…the composition, content, structure, and environment within which jobs and roles are enacted….” (Morgeson & Humphrey, 2008 p.11), have examined the influence of design on employees’ role perceptions and behaviors (Humphrey, Nahrgang, & Morgeson, 2007), employees’ behavioral, attitudinal, cognitive, and well-being outcomes (Humphrey et al., 2007). Recently, scholars also have called for adoption of a role theoretic approach toward work design, allowing for the incorporation of work elements outside formal job requirements, including the social and relational characteristics of work (Morgeson & Humphrey, 2008). Acknowledging the value of this approach, recent research has identified relationships between the social-environmental aspects of work design and both employee identity construction (Grant, 2007) and role perceptions (Humphrey et al., 2007).

In conjunction, these two areas of research point to the importance of: (1) employee expectations of what is required of their work role for mobilizing behavior; and (2) the impact of social characteristics of work on employees’ role perceptions. Despite this compelling
conceptual foundation, and the recent calls urging the incorporation of roles into work design research (Morgeson & Humphrey, 2008), work design research has been relatively silent regarding how social characteristics at work may influence employees’ expectations of their work-role requirements (see Dierdorff & Morgeson, 2007 for a notable exception). Thus, one of the primary goals for this research is to incorporate role theory as a conceptual mechanism to help understand how employees’ social environment, and in particular the general (or non-work-related) normative expectations regarding risk propensity (Sitkin & Pablo, 1992) experienced from fellow coworkers, can shape specific work-role expectations. More specifically, our current focus is on how risk propensity norms can influence what employees’ perceive to be a required aspect of their work role.

Further, while both task-specific (Dierdorff & Morgeson, 2007) and relational (Dierdorff et al., 2012) role expectations have received relatively extensive attention across a range of organizational contexts, researchers have yet to consider the evaluation of risk, at the individual level, as a core element of an employee’s work role. The focus of individual risk evaluation pertains to the process undertaken to assess uncertainty, and its potential for significant and/or disappointing outcomes (Sitkin & Pablo, 1992). While conceptually related, risk evaluation can be distinguished from safety and safety climate in its focus on not only potentially unfavorable outcomes but favorable outcomes as well (Kahneman & Tversky, 1979; Sitkin & Weingart, 1995). The relative absence of organizational scholarship emphasizing the significance of risk evaluation as an element of employees’ work roles is provocative, particularly in light of the acknowledged importance of risk evaluation, and its implications for both employee and organizational performance (c.f. Huang, Ho, Smith, & Chen 2005; Morrow & Crum 1998; Nahrgang, Morgeson, & Hofmann, 2011). Indeed, recent meta-analytic evidence suggests that
employees’ risk perceptions are significantly associated with a range of critical organizational outcomes, including workplace injuries, safety events, employee engagement, and burnout (Nahrgang et al., 2011).

In an effort to address this apparent gap in the role expectations literature, the underlying motivation for this research is to develop a better understanding of the extent that individuals perceive risk evaluation as an important element of their work-role, and by extension, the influence of the social environment on these perceptions and their subsequent work behavior. In developing this research model I seek to integrate role theory (Biddle, 1979; Graen, 1976) and prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992), which alternately explain behavior as patterns of activity in which individuals assume characteristic roles with shared understandings of role expectations for behavior (Biddle, 1986); and behavior as resulting from cognitive processes in which individuals evaluate the inherent risk present in a given situation vis-à-vis a contextually and/or socially derived reference points; framing subsequent behavior as either losses or gains relative to these reference points, and adopting behaviors affording decision makers with the highest level of perceived value (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992; Kahneman, 2003a).

Prospect theory is the single most influential descriptive model for understanding how individuals evaluate risk (Holmes, Bromiley, Devers, Holcomb, & McGuire, 2011). While it has seen widespread application in both economics and management, helping to explicate outcomes across a broad range of domains including negotiations (e.g. Kristensen and Garling, 1997), executive compensation (Wiseman & Gomez-Mejia, 1998), employee motivation (van Buiten & Keren, 2009), and HR strategy (Bamberger & Fiegenbaum, 1996), its introduction as a descriptive mechanism to facilitate understanding of risk evaluations outside of proximal
financial gains and losses has proceeded more slowly. This research seeks to address this apparent gap by developing and exploring the conceptual linkages between socially derived role expectations and the reference points that individuals use to frame outcomes and their subsequent behavior.

Through a comprehensive integration of role and prospect theories, I develop the argument that contextual factors in employees’ social environment, coworkers’ general (i.e., non-job-related) risk propensity, influence their perceptions that risk evaluation is a core expectation of the work-role. I further theorize that those risk expectations go on to inform how risk is evaluated and subsequent behaviors are chosen and adopted.

In so doing I seek to make at least three contributions to the literature. First, while research on safety climate speaks to the critical importance of coworker (or supervisor) behaviors in shaping employees’ risk behavior (Zohar, 2010), to our knowledge no research to date has evaluated the impact of coworker behaviors on employees’ perceptions of risk evaluation as a required element of their work-role. This is an important omission given the significance of both risk assessments for understanding a wide variety of occupational contexts (Pablo, 1999) and the acknowledged importance of role expectations as a driver of employee behavior (Katz & Kahn, 1978).

Further, I also aim to provide clarity regarding the influence of not just observed coworker risk behaviors per se (i.e., risky behaviors at work), but, more distally, employee perceptions of coworker risk propensity. That is, the focus here is on employees’ perceptions of what they believe a coworker may do, vis-à-vis risk activity, rather than solely what that employees’ may have observed coworkers doing vis-à-vis risk activity on the job. In so doing, I seek to offer an extension to role theory by explicitly recognizing risk evaluation of the job as an
element of the specific performance requirements of a work-role. Hereafter the label *risk-related role expectations* is used to refer to employees’ perception of risk evaluation as a core component of work-role performance, *i.e.* the extent to which an employee strongly views thinking about risk and its evaluation as a part of their work role.

Second, and relatedly, here I also theorize that beyond perceptions of coworker work-related risk behavior and attitudes, the more focally distal perceptions of coworker *general* attitudes toward risk propensity may influence employees’ perceptions of the degree to which risk evaluation is a core element of their work-role requirements. That is, here I focus on perceptions of coworker risk behaviors in their *personal lives* as a driver of employees’ risk-related beliefs. Given the critical impact of employees’ general social environment for shaping employee behavior and performance (Halbesleben, 2006; Humphrey et al. 2007), this focus represents a conceptual extension of research on risk, safety, and safety climate. My current emphasis on how employees’ perceptions of coworker risk propensity *outside of work* can impact work-role perceptions offers a more complete understanding of the broader social context and its influence on employees’ role expectations and behaviors.

Third, through an explicit integration of role theory and prospect theory, I argue that the cognitive decision-making process elaborated by prospect theory can help to deepen understanding of the mechanism through which employees’ role expectations are translated into work behavior. In addition, I advance the position that employees’ role-informed expectations serve as anchors for the reference points elaborated, but not well understood (Barberis, 2013; Koszegi & Rabin 2006; 2007; Holmes et al., 2011), by prospect theory. It is essential that scholars develop a more thorough understanding of individual reference points, as they
ultimately serve as the conceptual lynchpin for risk evaluation and behavior. Figure 1.1 presents the theoretical model and hypothesized relationships further elaborated in the following chapters.
Figure 1.1: Dissertation Model
CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES

The following literature review is organized into four parts. First, I begin with a discussion of expected utility theory (von Neumann & Morgenstern, 1944) and its linkages to prospect theory, tracing the development of thought on both theories over the past three centuries. Expected utility theory, and its spiritual successor prospect theory (Kahneman & Tversky, 1979) are the two most frequently utilized theoretical frameworks for understanding decision making under risk and uncertainty (Barberis, 2013). Prospect theory, and particularly its explanation of individual framing effects (Tversky & Kahneman, 1981) and the valuation of uncertainty, i.e. outcomes with ex ante unknown probabilities (Knight, 1921), serves as the foundation for my theorizing on individual risk-related decision making and behavior in the workplace. Second, I offer a discussion of role theory and the ways in which employees come to understand their roles, expectations and consequent behavior. Third, I develop several hypotheses derived directly from the predictions of role theory. I conclude with an integration of role theory and prospect theory, with the goal of using each to help understand unanswered questions in the other. In so doing I offer several hypotheses that link the two theories together with the goal of developing a more complete understanding of the role of risk and behavior in the workplace.
Expected Utility and the Foundations of Prospect Theory

“Explanations and predictions of people's choices, in everyday life as well as in the social sciences, are often founded on the assumption of human rationality,” (Tversky & Kahneman, 1981). This at once striking and intuitive remark made nearly 35 years ago serves as the point of departure for a series of observations and predictions of individual decision making under risk and uncertainty—decisions that systematically violate the above assumption. The authors chose to name their ideas prospect theory (Kahneman & Tversky, 1979), and proposed it as an explanation to observed violations of the predictions made by expected utility (Bernoulli, 1738/1954; Jevons, 1871; von Neumann & Morgenstern, 1944).

Expected utility, itself an attempt to explain how individual circumstances can influence the value individuals place on a particular outcome when faced with a risky choice (Bernoulli, 1738/1954), suggests that decision makers choose between uncertain prospects by “comparing their expected utility values, i.e., the weighted sums obtained by adding the utility values of outcomes multiplied by their respective probabilities,” (Mongin, 1998). Consider the following two examples (both adapted from Bernoulli, 1738/1954) illustrating (a) individual circumstance influencing valuation of a risky choice and (b) how individuals may use expected utility, rather than expected value as a decision criterion when evaluating a risky or uncertain outcome.

(A) A very poor person finds a lottery ticket that has an equal chance of winning either zero or twenty thousand dollars. Would this person value their chance of winning at ten thousand dollars? That would be the correct valuation, according to the expected value formula of

\[ E(x) = \sum x_i p_i, \text{ (equation 1)} \]
where $x$ equals the possible gain and $p$ equals the probability of the gain occurring.

Therefore, in the preceding example with only one trial, the expected value of the poor person’s chance of winning would be $(20000 \times 0.5)$, or $10,000. Would this poor person be making a mistake to sell their lottery ticket for nine thousand dollars, an amount less than its expected value? Intuitively, and as Daniel Bernoulli (1738/1954) observed, the answer would be no, the poor person would not think it a mistake to sell the lottery ticket for nine thousand dollars. Nor would the casual observer, save for the odd economist, dispute this reasoning.

Conversely, a rich person, met with the opportunity to purchase the same lottery ticket for nine thousand dollars, according to Bernoulli’s line of reasoning, would be making a mistake if they did not buy it. In both cases, both the poor person and the rich person have the option to either hold the lottery ticket or to hold nine thousand dollars (Latane, 1959).

Why, in this example is it more advisable for the poor person to keep the nine thousand dollars (forgoing the chance to win $20,000) and for the rich person to buy the ticket (forgoing the chance to keep $9,000)? Bernoulli suggests that this apparent inconsistency, which is at odds with mathematically derivable expected value, is due to differences in individual circumstances, and points to a need to evaluate risky or uncertain decision based on expected utility, rather than expected value. To further elaborate the point, consider the following table adapted from Lantane (1959).
Here we see how the expected value approach can run afoul of what Bernoulli observed is likely to happen in reality. Returning to the example of lottery ticket, attempting to maximize the expected value of the risky choice (Criterion A column) would lead the odd economist to recommend that the poor person hang on to the ticket because of its expected value of ten thousand dollars. Likewise, the same economist would recommend that the rich person purchase the ticket, again because it has an expected value of ten thousand dollars, thus placing the rich person in a situation where they stand to gain one thousand dollars over the purchase price.

In practice, the expected value approach is a good criterion when there are a large number of independent trials (Lantane, 1959). However, Bernoulli’s point with the lottery ticket was to illustrate how the expected value approach may not be particularly useful when choices involve large risks (Lantane, 1959), and considerations are made regarding subjective utility (returned to below). To help illustrate how individuals may use expected utility rather than expected value, consider the following famous example of the St. Petersburg Paradox, first proposed by Nicolaus Bernoulli (Daniel’s cousin) in a letter to French mathematician Pierre Raymond de Montmort.
published in Montmort’s *Essay d’analyse sur les jeux de hazard* (*Essay on the analysis of games of chance*).

(B) Peter flips a fair coin and continues to do so until it comes up heads. He agrees to pay Paul two dollars if heads comes up the first time, four dollars if heads comes up on the second flip, eight dollars if heads comes up on the third flip and so on. Thus the total number of flips determines the prize and may be expressed as $x = 2^n$, where $x$ is the prize amount and $n$ is the number of flips until the coin comes up heads.

If we wish to determine Paul’s expected value for the game, as in our first example, we simply multiply the possible gain ($x$) by its probability of occurrence ($p$) and sum the expected values of all the occurrences. Consider the following table adapted from Martin (2013) that illustrates the prizes, their respective probabilities and their expected values for $n = 1\ldots10$.

<table>
<thead>
<tr>
<th>$N$</th>
<th>$p(n)$</th>
<th>Prize ($x$)</th>
<th>Expected Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1/2$</td>
<td>$2$</td>
<td>$1$</td>
</tr>
<tr>
<td>2</td>
<td>$1/4$</td>
<td>$4$</td>
<td>$1$</td>
</tr>
<tr>
<td>3</td>
<td>$1/8$</td>
<td>$8$</td>
<td>$1$</td>
</tr>
<tr>
<td>4</td>
<td>$1/16$</td>
<td>$16$</td>
<td>$1$</td>
</tr>
<tr>
<td>5</td>
<td>$1/32$</td>
<td>$32$</td>
<td>$1$</td>
</tr>
<tr>
<td>6</td>
<td>$1/64$</td>
<td>$64$</td>
<td>$1$</td>
</tr>
<tr>
<td>7</td>
<td>$1/128$</td>
<td>$128$</td>
<td>$1$</td>
</tr>
<tr>
<td>8</td>
<td>$1/256$</td>
<td>$256$</td>
<td>$1$</td>
</tr>
<tr>
<td>9</td>
<td>$1/512$</td>
<td>$512$</td>
<td>$1$</td>
</tr>
<tr>
<td>10</td>
<td>$1/1024$</td>
<td>$1024$</td>
<td>$1$</td>
</tr>
</tbody>
</table>
Since there are an infinite number of potential outcomes (the table only illustrates the first ten), the sum of the expected values for each occurrence is infinite. Expressed as a formula, the expectation of infinite value is

\[ E(x) = \sum_{k=1}^{k=\infty} 2^k \left( \frac{1}{2} \right)^k = 1 + 1 + \cdots = \infty \ (eq. 2) \]

where \( x \) equals the possible gain and \( k \) the number of flips before the coin comes up heads.

Thus, based on the expected value approach, Paul would be wise to pay any finite entry price, no matter how large it was, because the expected value of the game is infinite. Clearly this does not seem to match up with reality as most (again, aside from the odd economist) would balk at an entry price of twenty or twenty-five dollars (Bernoulli, 1738/1954; Martin, 2013). This paradox is what Bernoulli addressed through his notions about expected utility.

Bernoulli argued that, instead of an expected value approach, rational people instead distinguish among risky or uncertain prospects with an eye towards maximizing utility, rather than value\(^1\). What then was Bernoulli’s explanation for how an individual might determine the utility of money in general? He suggested that the “utility resulting from any small increase in wealth will be inversely proportionate to the quantity of goods previously possessed” (Bernoulli, 1738/1954; Martin, 2013).

\(^1\) Indeed Bernoulli says as much in the footnotes to his 1738 paper, “mathematicians evaluate money in proportion to its quantity while, in practice (emphasis retained from original), people with common sense evaluate money in proportion to the utility they can obtain from it.” (1738; 1954 pp. 33)
1738/1954, p. 25). In Bernoulli’s formulation, this logarithmic utility function was necessarily strictly concave and took the form of

\[ u(y) = b \ln \frac{x+y}{\alpha} \], general form, often simplified as, \((eq.3)\)

\[ u(y) = \ln (y) \], and can be expressed as, \((eq. 4)\)

\[ \sum_i p_i \ln(x + y_i). \] \((eq. 5)\)

when indicating the expected utility in a game of chance with multiple possible utilities where the weighted average of utilities corresponds to their respective probabilities, and where \(u(y)\) is the expected utility of risky choice with monetary outcome \(y\), \(b\) is a constant (often 1), \(x\) is the person’s starting wealth, \(p\) is the probability of utilities and \(\alpha\) is a subsistence level of income. Setting aside the influence of \(\alpha\), the amount of wealth necessary for existence, which varies considerably with temperament, habits and surroundings of the individual (Marshall, 1920), and the importance of starting wealth for a moment (see below) we can illustrate the preceding discussion by returning to the St. Petersburg Paradox. If we wished to determine the utility Paul placed on playing the St. Petersburg game \((eq. 5)\), we would simply sum Paul’s starting wealth \(x\) and the anticipated monetary outcome \(y\) of the \(i\)th occurrence, and take the natural log of the resulting sum\(^2\). Considering for a moment just the first flip of the coin, the natural logarithm is 0.69, which can be used as an indicator of Paul’s utility expressed in utiles. If we then wished to determine the expected utility of the gamble we would use the utile just calculated and calculate the product of the utile and its probability; in this case the product is 0.35.

\(^2\) For the purposes of this example, let us assume that Paul’s starting wealth is equal to zero.
Consider the following table illustrating the prizes, their respective probabilities, utiles, expected utility, and cumulative expected utility for \( n = 1 \ldots 10 \). A summation of expected utilities across the first ten coin flips (the influence of succeeding expected utilities diminishes dramatically following the eighth trial) provides us with a cumulative expected utility (1.38) which we can then raise \( e \) to the power of and arrive at a number of approximately four dollars. This is the certainty equivalent, or the amount that Paul would be willing to pay to participate in the St. Petersburg game. Figure 2.1 illustrates the logarithmic function of expected utility. Note its concave shape, which is an important feature returned to below.

<table>
<thead>
<tr>
<th>( n )</th>
<th>( p(n) )</th>
<th>Prize (( x ))</th>
<th>Utiles = ( \ln(x+y) )</th>
<th>Expected Utility</th>
<th>Cumulative Expected Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.50</td>
<td>$2</td>
<td>0.69</td>
<td>0.35</td>
<td>0.35</td>
</tr>
<tr>
<td>2</td>
<td>0.25</td>
<td>$4</td>
<td>1.39</td>
<td>0.35</td>
<td>0.69</td>
</tr>
<tr>
<td>3</td>
<td>0.13</td>
<td>$8</td>
<td>2.08</td>
<td>0.26</td>
<td>0.95</td>
</tr>
<tr>
<td>4</td>
<td>0.06</td>
<td>$16</td>
<td>2.77</td>
<td>0.17</td>
<td>1.13</td>
</tr>
<tr>
<td>5</td>
<td>0.03</td>
<td>$32</td>
<td>3.47</td>
<td>0.11</td>
<td>1.23</td>
</tr>
<tr>
<td>6</td>
<td>0.02</td>
<td>$64</td>
<td>4.16</td>
<td>0.06</td>
<td>1.30</td>
</tr>
<tr>
<td>7</td>
<td>0.01</td>
<td>$128</td>
<td>4.85</td>
<td>0.04</td>
<td>1.34</td>
</tr>
<tr>
<td>8</td>
<td>0.00</td>
<td>$256</td>
<td>5.55</td>
<td>0.02</td>
<td>1.36</td>
</tr>
<tr>
<td>9</td>
<td>0.00</td>
<td>$512</td>
<td>6.24</td>
<td>0.01</td>
<td>1.37</td>
</tr>
<tr>
<td>10</td>
<td>0.00</td>
<td>$1024</td>
<td>6.93</td>
<td>0.01</td>
<td>1.38</td>
</tr>
</tbody>
</table>
Returning to the point bearing on the importance of starting wealth, why did Bernoulli propose the log of $x + y$ as an indicator of utility? The answer can be found in one other important element that Bernoulli added to his ideas on expected utility, and which harkens directly back to our earlier example of the lottery ticket—individual wealth—diminishing marginal utility, although he didn’t refer to it in these terms. Diminishing marginal utility, simply put, is the idea that as a person’s wealth increases, the satisfaction derived from it increases, but at a rate less than the rate of wealth increase (Martin, 2013). Recalling the earlier example of the lottery ticket, Bernoulli’s thoughts on diminishing marginal utility offer an explanation for why the poor person would rationally choose to sell the ticket for nine thousand dollars, an amount less than its expected value. The concept of diminishing marginal utility provides that, because the poor person’s own individual wealth serves as the reference point to evaluate whether or not to hold or sell the lottery ticket, being that they possess a relatively small amount of individual wealth, the poor person derives greater utility from selling the lottery ticket at nine thousand dollars than would the rich person faced with the prospect of buying the same lottery ticket for nine thousand dollars (with the same expected value of ten thousand dollars).
Even as Bernoulli was proposing his solution to the St. Petersburg Paradox and advancing the notion of a logarithmic utility function, others were proposing different hypotheses bearing on the shape and the bounds of the utility function (Friedman, Isaac, James, & Sunder, 2014). Gabriel Cramer, for example, in 1728 proposed that probabilities on the highest payoffs were essentially treated as zero by game participants. In other words, Cramer suggested that payouts above a certain amount (for Cramer the upper bound was ten million dollars) would not yield any further increases. Thus, according to Cramer, 100 million, a billion, etc. would influence a person no more to play the game than would a sum of ten million dollars. Further, Cramer suggested that we consider the square root of the expected winnings as an indicator of utility, rather than Bernoulli’s suggested logarithmic function. Consider Cramer’s square root function; it takes on the shape indicated in Figure 2.2. Despite the differences in scaling, both Bernoulli’s (Figure 2.1) and Cramer’s functions have a similar concave shape, but with slightly different degrees of concavity.

![Figure 2.2: Cramer's Expected Utility](image)
At this point we can begin to appreciate the fundamental concepts of expected utility and its predictions as they bear on human behavior. Before moving on to more recent work in expected utility and subsequent developments in prospect theory, it is important to note that it is essential to not underestimate Bernoulli’s contribution to both economics and, more broadly, to scientific inquiry into human behavior. Indeed, Bernoulli, perhaps for the first time in modern scientific endeavor, attempted to measure something that cannot be counted. For example, “Bernoulli defined the motivations of the person who does the choosing… (and) laid the intellectual groundwork for much of what was to follow, not just in economics, but in theories about how people make decisions and choices in every aspect of life” (Bernstein, 1996 p. 108).

Bernoulli may have offered an elegant explanation for individual rational behavior when faced with risky or uncertain decisions, but he failed to fully extend his ideas into a complete theory of behavior\(^3\). Perhaps it is because of this that Bernoulli’s ideas remained a hot topic of discussion amongst mathematicians of the eighteenth and nineteenth centuries, but remained relatively unknown amongst economists (Schlee, 1992). Jeremy Bentham, for example, whom most would acknowledge as the father of utilitarianism, appears to have been unaware of Bernoulli’s writings on utility (Schlee, 1992). Writing in his 1802 treatise *Traité de Législation Civile et Pénale*, Bentham described the happiness, or utility, derived from the decision to risk one’s fortune in a game of chance (1802/1840 p. 131) in a manner similar to Bernoulli’s

---

\(^3\) He admits as much while explaining the importance of considering an individual’s starting wealth when evaluating utility, “This principle is essential for the measurement of risky propositions in various cases (and) I would elaborate it into a complete theory were it not that, despite its usefulness and originality, *previous obligations* (emphasis added) do not permit me to undertake this task.” (Bernoulli 1738; 1954)
discussion of the St. Petersburg Paradox, without indicating any familiarity with the latter’s seminal work.

Bentham suggested that, were he to gamble half his wealth (half of one thousand pounds), and lose, his fortune would be reduced by half and, were he to win, his fortune would only increase by one-third. Thus, if he were to win, his happiness (utility) would not increase in a linear way with his increase in wealth. The increase in happiness is less than the corresponding increase in wealth. Likewise, were Bentham to lose, his happiness would not decrease in a linear way. Happiness would decrease substantially more than the corresponding decrease in wealth (Bentham, 1802/1840). Bentham’s observations, while perhaps not as mathematically sophisticated as Bernoulli’s (Schlee, 1992), do appear to be reminiscent of Bernoulli’s proposition that expected utility is determined, in part, by one’s starting wealth. In addition Bentham’s (and Bernoulli’s) observation that people may have different attitudes toward losses or gains, when faced with a risky decision, portends some of prospect theory’s most powerful observations regarding the influence of framing on risk aversion and risk seeking (discussed below).

Likely contributing to the lack of familiarity with Bernoulli’s ideas, at least amongst economists of the eighteenth and mid to late-nineteenth centuries, was that his paper, originally written in Latin in 1738, was not translated into any vernacular language until 1896 (German), and not translated into English until 1954 (Bassett, 1987). This, coupled with the apparent inability of Bernoulli’s ideas to satisfactorily explain widespread gambling behavior⁴, led to

⁴ To elaborate a bit more on the last point, the apparent contradiction between expected utility theory’s predictions and gambling can be stated as such: if the diminishing marginal utility of wealth argument is correct, which holds that people enjoy less utility for a given increase as their personal wealth increases, why would anyone engage in a fair gamble? What’s more, why
expected utility theory receiving little, and largely negative, attention up until the end of the nineteenth century (Friedman et al., 2014).

Beginning with the publication of William Stanley Jevons’ *The Theory of Political Economy* in 1871, economists began to focus more attention on Bernoulli’s work, and expected utility theory more broadly, seeking to extend its logarithmic model of utility to a more generalizable concave utility function (Friedman et al., 2014), and further attempting to refine its explanatory power to include supposedly irrational gambling behavior. Jevons’ overall position was that economic value depends entirely on utility and, what’s more, that its variation is the key component of value. For example, “We only have to trace out carefully the natural laws of the variation of utility…in order to arrive at a satisfactory theory of exchange.” (Jevons, 1871 p. 2) Jevons goes on to argue that the importance he places on the variation in utility, which he argues was a “somewhat novel opinion” (1871 p. 1), is manifest in his observations of human behavior. He uses the now familiar example of the rich person and poor person deciding over whether or not to wager fifty pounds in a game of chance as an illustration of utility of money varying to a much larger extent for the poor person than for the rich person. Here, Jevons acknowledges Bernoulli’s advancement of earlier ideas by recognizing the distinction between one’s expectation of the chance to receive some possession (expected value) and their expectation of that possession’s utility for themselves.

would a person engage in an unfair gamble, as is so often the case? Even blackjack, one game of chance where the odds are closest to being in the player’s favor—50.5%-70% house advantage depending on strategy (Frontline, 2014), is not a fair gamble.

Jevons’ contention that his focus on utility was novel is somewhat surprising, given his obvious familiarity with Bernoulli’s work.
Where Jevon’s (1871) departs from Bernoulli is in his observation that Bernoulli never proposed a means of mathematically assessing the variation of utility and, as a result, made some arbitrary assumptions as to its character. Jevons may be hinting at Bernoulli’s choice of a logarithmic utility function, rather than a more generalized concave function. Jevons also notes Bernoulli’s sidestepping of decreasing marginal utility, failing to explain why two rational individuals would participate in a fair game of chance knowing that the potential utility lost is greater than the potential utility gained, and observing that “this is Nature’s admonition to avoid the dice altogether” (Bernoulli, 1738/1954 p. 29). Instead, Jevons recognizes that there may be other utilities involved in gaming beyond the utility of money. He suggests that there may be a certain pleasure attached to the playing of the game itself.\(^6\)

Jevons’ *Theory of Political Economy*, along with similar contributions by contemporaries—Austrian economist Carl Menger (1871) and Swiss economist Marie-Esprit-Leon Walras (1874), was extraordinarily influential, kicking off what would later come to be called the *marginal* or *neoclassical revolution*. From this point on economists began build on Bernoulli’s notions of expected and decreasing marginal utility in quick succession. British economist Alfred Marshall for example, in his 1890 *Principles of Economics*, a text which was to become the standard for generations of economics students, echoed Jevons’ earlier observations on the apparent contradiction between Bernoulli’s diminishing marginal utility and gambling behavior, writing, “The argument that fair gambling is an economic blunder is generally based on Bernoulli’s or some other definite hypothesis. But it requires no further assumption than that, firstly the pleasure of gambling may be neglected; and, secondly \(\Phi\)” is

---

\(^6\) A surprising, and important concession coming from an economist who generally are not known to consider evaluations in anything other than dollars and cents.
negative for all values of \( x \), where \( \phi(x) \) is the pleasure derived from wealth equal to \( x \).” (Marshall, 1890 p. 135) He then goes on to demonstrate\(^7\) the importance of considering more than the utility of wealth when attempting to reconcile gambling with expected utility (Schlee, 1992).

Others working on refining expected utility during this period include British economist Frank Ramsey (1926), who, in advocating for a consideration of subjective probability, itself an outgrowth of Thomas Bayes’ work nearly two hundred years prior (Bradley, 2001), argued that we must take account of individual belief in influencing probability estimates, desire, and subsequent behavior, in decisions involving uncertainty. Desire, according to Ramsey, was equivalent to utility, while belief was equivalent to probability estimates (Bradley, 2001). He even proposed a method for quantitatively measuring individual degree of desire and belief\(^8\).

Austrian-American economist Karl Menger\(^9\), and son of Carl Menger, confronted the St. Petersburg Paradox and Bernoulli’s solution to it directly by demonstrating that Bernoulli’s logarithmic solution does not solve the paradox if altered slightly. The younger Menger observed that if one were to alter the value of the gamble so that it increases much faster than doubling for each successive round, the change in value function rises fast enough to overtake

\[\text{\footnotesize For interested parties—}
\]

\[\begin{align*}
\text{\footnotesize By doing so he changes his expectation of happiness from} \\
\phi(x) \to p\phi[x + (1 - p)y] + (1 - p) \phi(x-py); \\
\text{This when expanded by Taylor’s theorem becomes} \\
\phi(x) + (1/2)p(1 - p)^2y^2 \phi'''[x + \Theta(1 - p)y] + (1/2)p^2(1 - p)y^2 \phi'''(x - \Theta py); \\
\text{assuming } \phi''(x) \text{ to be negative for all values of } x, \text{ this is always less than } \phi(x)\end{align*}\] (Marshall, 1890 p. 135)

\[\text{\footnotesize Interested parties may refer to Ramsey’s (1926) own explanation and Bradley’s (2001) excellent explication of Ramsey’s theorems on measuring belief and desire.}
\]

\[\text{\footnotesize Who, incidentally, was instrumental in shaping the first English translation (1954) of Daniel Bernoulli’s (1738) paper.}\]
Bernoulli’s suggested logarithmic utility function, which again leaves the paradox of infinite expected value\(^{10}\) (Menger, 1934; Hayden & Platt, 2009). In explaining his ideas, Menger offered the following theorem, “For any evaluation of additions to a fortune by an unbounded function, there exists a game related to the Petersburg Game in which the subjective expectation of the risk-taker on the basis of that value function is infinite.” (Menger, 1934 p. 218) Because of this, Menger went on to offer what were to become his most well-known refinements to the theory of expected utility—a bounded utility of wealth function and the individual discounting of small probabilities (Schlee, 1992).

In essence, Karl Menger argued, mathematically, that one can solve the “paradox” for any variant of the St. Petersburg game if the utility of wealth function is bounded\(^{11}\). By his own admission however, Menger felt this mathematical solution was inadequate. He therefore sought an analogue in a behavioral explanation. He settled on the observation that actual human behavior seems to indicate that outcomes associated with very low and very high probabilities are systematically undervalued by individual decision makers. Menger, in discussing normal behavior in games of chance, suggested that a risk-taker, “refuses to risk money if the probability of winning is extraordinarily small (Menger, 1934 p.222). From this he concluded that people steadily undervalue small probabilities. He also added that the general willingness on the part of risk-takers to purchase lottery tickets and play games of roulette is indicative of a systematic overvaluation of “medium probabilities (p. 225). Both interesting observations, particularly in the light of Kahneman and Tversky’s (1979; 1992) later findings (discussed below).

---

\(^{10}\) Menger proposed \(e^{2n}\), rather than Bernoulli’s \(2^n\), as a substitute for the increasing value of each successive round that would invalidate Bernoulli’s solution.

\(^{11}\) Function \(f(x)\) is bounded if it has a range consisting of a bounded set, i.e. of finite size across all values of \(x\).
Aside from its individual merit, Menger’s solution for the St. Petersburg Paradox captured the interest of Hungarian-American mathematician John von Neumann (Hayden & Platt, 2009), who, along with economist Oskar Morgenstern, together were to write arguably the most important contribution to the theory of expected utility since Bernoulli himself (Friedman, et al., 2014). In their 1944 book *The Theory of Games and Economic Behavior* von Neumann and Morgenstern not only created the interdisciplinary field of game theory (Fishburn, 1989), but they also provided a definite process and series of axioms for determining an individual’s utility function, with any given environment or particular circumstances (Friedman et al., 2014). Those axioms are worth briefly mentioning here on their own merit, but also to (re)familiarize the reader with their tenants before discussing them in relation to the remarks of later authors, namely Allais (1952/1955), Ellsberg (1961), Friedman (1948), Savage (1954), Kahneman, and Tversky (1979).

von Neumann and Morgenstern commented that, when faced with an uncertain decision involving any number of known outcomes whose probability sums to one, utility could be measured for any rational person who satisfied the following four axioms\(^{12}\):

1. Completeness—assumes that an individual’s preferences are known and complete. For example, consider the uncertain prospects L, M. Completeness is satisfied when L > M, M > L, or L = M,

2. Transitivity—assumes that preferences are consistent across prospects. If L ≤ M and M ≤ N, then L ≤ N,

---

\(^{12}\) The fourth axiom (independence) is not found in the original version of *The Theory of Games and Economic Behavior*, however Fishburn (1989) notes that it can be derived from the third axiom (cf. Malinvaud, 1952).
3. Archimedean axiom—assumes that, given any three prospects strictly preferred to each other, i.e. \( L > M > N \), since \( L \) is preferred to \( N \), then no matter how undesirable \( N \) is, there is some mixture of \( L \) and \( N \), weighted by probability \( p \) \((0, 1)\), so that the weighted mixture is preferable to \( M \) (Slantchev, 2007).

4. Independence—assumes that if \( L > M \), then for any \( N \) with probability \( p \) \((0, 1)\), 
\[
pL + (1-p)N > pM + (1-p)N
\]
(Jensen, 1967).

Having satisfied the preceding axioms, consider the following example of the von Neumann and Morgenstern technique. Suppose a person prefers \( L > M > N \) and they are faced with a gamble between the certain prospect \( M \) and either \( L \) with a probability \( p \), or \( N \) with a probability \((1 – p)\); One must determine the \( p \) which would make \( puL + (1 – p)uN = uM \). If the individual is faced with a one-fifth chance of winning nothing (\( N \)), and a four-fifths chance of winning $10 (\( L \)), the expected utility of the gamble is \((1/5 * 0) + (4/5 * 1) = 4/5\), where \( uL \), the utility of winning $10, is arbitrarily set equal to unity. If we also assume that the individual is indifferent between the certain prospect (\( M \)) and \( L \) or \( N \) when \( M = $6 \), then \( uM = 4/5 \) of \( uL \).

Thus, if we vary the probabilities in the gamble and set the average utility of the outcomes equal to different values of \( M \), the entire utility curve can be elicited (adapted from Blaug, 1962/1985).

The importance of von Neumann and Morgenstern’s writings in fueling the interest in expected utility theory during the mid to late part of the twentieth century cannot be overstated (Fishburn, 1989). American mathematician L. J. Savage, whose work we will turn to below, commented on von Neumann and Morgenstern axioms and their notions on utility, saying it “…gives strong intuitive grounds for accepting the Bernoullian utility hypothesis as a consequence of well-accepted maxims of behavior.” (Savage, 1954 p. 97) Considered a classic of economic and mathematical thinking for more than a half century (Fishburn, 1989), it would
seem that each subsequent author working in utility theory and, later, prospect theory has contended with von Neumann and Morgenstern’s work in one way or another. In spite of their influence however, empirical support for their notions on utility has returned only ambiguous results (Blaug, 1962/1985).

Nobel laureate Milton Friedman and L. J. Savage built on the aforementioned theorems in their 1948 paper *Utility Analysis of Choices Involving Risk* by proposing the following as an attempt to explain the apparently contradictory behavior of individuals who remain risk—averse with regard to the protection of large assets (i.e. purchasing insurance against losses), while simultaneously displaying risk—seeking behaviors when playing risky games of chance with low probabilities of utility gains. A purely concave utility was not seen as being particularly useful as a vehicle to explain simultaneous risk—aversion and risk—seeking patterns of behavior. Friedman and Savage proposed that the utility function is only concave in its uppermost and lowermost areas, while in the middle it is convex (Figure 2.3). This approach suggests that diminishing marginal utility holds for both very small and very large amounts of wealth but increasing marginal utility explains behavior at the middle of the function. Further, the Friedman-Savage hypothesis suggests that individual utility is evaluated on an absolute level of income. In other words, current income (designated I in Figure 2.3), is located at a point in the initial convex segment, and individuals evaluate utility by moving along the curve in relation to that current income (Blaug, 1962/1985).
In a similar vein, Harry Markowitz, also a Nobel laureate, proposed a utility function with multiple inflection points—in Markowitz’s case—three (Figure 2.4), with current income at the middle inflection point ($I'$). Here, Markowitz (1952) argued that, as individuals evaluate utility, small increases in income lead to increasing marginal utility (the convex shape of the utility function adjacent to $I'$), but large increases lead to diminishing marginal utility (the concave shape of the utility function further away from $I'$).

At the same time that Friedman, Savage, and Markowitz were following in von Neumann and Morgenstern’s footsteps, and adding refinements to the shape of the utility function in an effort to muscle it into concordance with observed behavior, others were beginning to conduct experiments that challenged the predictive power of expected utility even further. Perhaps the most notable of these was Maurice Allais. During a lunch conversation with L. J. Savage at a 1952 conference in Paris, expanded upon in Allais’ book (1955), Allais asked Savage to respond to a list of twenty preference questions, the substance of which were what is now referred to as the *Allais Paradox*. Savage, much to his bewilderment, chose responses that failed to correspond to his, or von Neumann and Morgenstern’s, notions of expected utility predictions for human behavior. Those predictions suggest that people will choose, among uncertain outcomes, the
outcome with the highest expected utility. The gist of the questions Allais asked Savage was this (Allais, 1955):

Do you prefer Situation A to Situation B?

Situation A: certainty of winning 100 million dollars

Situation B: a 10 percent chance of winning 500 million dollars, an 89 percent chance of winning 100 million dollars, and a one percent chance of winning nothing

Do you prefer Situation C to Situation D?

Situation C: an 11 percent chance of winning 100 million dollars and an 89 percent chance of winning nothing

Situation D: a 10 percent chance of winning 500 million dollars and a 90 percent chance of winning nothing.

What Savage chose, as do most others, is a preference for Situation A over Situation B, and a preference for Situation D over situation C. If we recall the von Neumann-Morgenstern axiom of independence, which implies that the order of preference between two prospects sharing a part in common (L, N) remains unchanged by any displacement of that common part (Allais, 1955), we would expect the rational person, having exhibited a preference for Situation A over Situation B, would have a preference for Situation C instead of Situation D. What the Allais Paradox exposes is the rational preference for certainty (risk-aversion) in Situation A, and a simultaneous willingness to accept the more risky gamble in Situation D (risk-seeking). Savage’s response to his own choices was that he must have chosen irrationally (Savage, 1954; Allais, 1955).
Almost at the same time Allais was poking holes in expected utility’s ability to predict rational human behavior, a military analyst working for the Rand Corporation, Daniel Ellsberg, noted additional inconsistencies between expected utility theory and observed behavior (1961). Ellsberg demonstrated, in his hypothetical experiment that has become known as the Ellsberg Paradox (natch), that people choose in ways that violate their own probability estimates (and subsequent utility evaluations) when presented with decisions that involve both known and unknown probabilities (Ellsberg, 1961).

Imagine that we have before us one urn with exactly thirty red balls and sixty black and yellow balls in an unknown proportion. Ellsberg then proposed the gamble of drawing one ball with the following choices: Situation A – betting on drawing a red ball, and Situation B – betting on drawing a black ball. Ellsberg asked us to then consider one additional draw from the urn with the following choices: Situation C – betting on drawing a red or yellow ball, and Situation D – betting on drawing a black or yellow ball. What Ellsberg observed was that most people have a preference for Situation A in the first gamble (the drawing of a red ball, with a known proportion of one-third), and Situation D in the second (the drawing of a black or yellow ball, again with a known proportion of two-thirds). Taken together the choices would appear to indicate that we would simultaneously prefer to bet on red, rather than black, in the first instance and also prefers to bet on “not-red”, rather than “not-black”, in the second choice. In both choices the gambler displays a preference for the “certain” probability rather than an uncertain one. Despite the predictions of expected utility theory, people are overwhelmingly averse to ambiguity in decisions involving risk.
The Birth of Prospect Theory

It was during this same period that two Israeli psychologists, Amos Tversky and Daniel Kahneman, began to look closely at the types of heuristics people use during decision making. Their work (1974) initially was conceptually unrelated to expected utility theory and focused on mounting experimental evidence suggesting that individuals use a set of heuristics when evaluating the subjective probabilities of uncertain outcomes; heuristics that can lead to biased and erroneous conclusions. Perhaps without intending to do so (Kahneman, 2003a), with their 1974 article in Science, Tversky and Kahneman (1974) was seen as nothing short of a direct challenge to supposed human rationality (Kahneman, 2003a). In this article the authors described three broad categories of heuristics employed when making judgments under uncertainty: (1) representativeness—determining the probability that event or object A belongs to the process or class B; (2) availability—the extent to which an event or object can be quickly recalled or imagined when evaluating the plausibility of a development or the frequency of a class; and (3) the anchoring effect—the extent to which people are able to make accurate estimates when asked to adjust their estimate based on an initial anchor (1974).

The representativeness heuristic is typically employed when people are asked to determine the probability that process B will generate event A. In evaluating this probability people tend to rely on the extent to which A is representative of B, i.e. how much A resembles B. Consider the following example:

Peter loves racing his motorcycle and tries to go rock climbing at least twice a week. In his spare time, Peter has been giving lessons at a local whitewater kayaking club. Based on Peter’s description, is he more likely to be a school teacher or a commercial diver?
Many respondents would identify Peter as a commercial diver based on representativeness. Peter appears to share many elements in common with prototypical notions of how a commercial diver might behave. Based on probability, it is far more likely that Peter is a school teacher. Tversky and Kahneman (1974) demonstrated that people are far more likely to evaluate probability based on similarity or representativeness rather than prior probabilities.

Perhaps most importantly given its linkages to their future work, Tversky and Kahneman (1974) demonstrated that people make estimates (and errors in judgment) by making adjustments to an initial starting value—a phenomenon they referred to as an anchoring heuristic. The authors asked subjects to estimate the percentage of African countries in the United Nations as a deviation from a random number from 0 to 100. Subjects who had received 10 as starting point offered a median estimate of 25 percent, while subjects who had received 65 as a starting point offered a median estimate of 45 percent (Tversky & Kahneman, 1974). From this the authors surmised that estimates are influenced by initial starting values, or reference points.

From these initial forays examining individual judgment heuristics, and the mounting evidence arguing against the predictions of expected utility (c.f. Allais, 1952; Ellsberg, 1961; Markowitz, 1952), Kahneman and Tversky (1979) crafted prospect theory as a both a challenge to the thinking of expected utility and a way to explain individual decision making in the face of risk and uncertainty. In so doing, they accomplished two goals. Kahneman and Tversky (1979) gathered in one place a collection of experimental results demonstrating that people systematically violate the behavior that expected utility theory would predict. They also provided a new model of decision under risk that was better able to effectively account for emergent patterns in a growing body of experimental evidence and explain simultaneous individual risk-aversion and risk-seeking (Barberis, 2013).
Kahneman and Tversky (1979) enumerated a two phase process of individual decision making under risk, whereby people evaluate risky *prospects* by (1), analyzing and simplifying the available prospects (framing/editing phase); and (2) evaluating the edited prospects and choosing the prospect with the highest value (valuation/evaluation phase). The purpose of the framing phase is to allow the decision maker to organize and simplify prospects to facilitate subsequent evaluation (Kahneman & Tversky, 1979). During this phase, the decision maker makes a mental representation of the acts, contingencies, and outcomes associated with the decision, and transforms the probabilities associated with available prospects (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992).

A number of major operations take place during the framing phase including *coding*, *combination*, *segregation*, and *cancellation*. Combination, segregation, and cancellation all pertain to perceptual processes that simplify prospects by combining those with identical outcomes, segregating prospects with both probabilistic and riskless outcomes, and discarding components shared among prospects. The essence of the framing phase, however, is what Kahneman and Tversky (1979) initially called coding. Coding refers to whether a prospect is perceived as a gain or a loss. That perception depends on the prospect’s position relative to some neutral reference point. Whereas expected utility theorists might argue that the neutral reference point corresponds to some absolute resource level or one’s own current level of resources (cf. Friedman & Savage, 1948; Markowitz, 1952), prospect theory proposes that the location of the reference point is influenced by the formulation of the prospects (hence the term framing), the expectations of the decision maker (Kahneman & Tversky, 1979; Tversky & Kahneman, 1986), and also the norms, habits and personal characteristics of the individual evaluating the prospects (Tversky & Kahneman, 1981).
While Kahneman and Tversky (1979; 1981; 1986) did not offer such a delineation and included both explanations in their conceptual description of framing, the influence of the specific formulation of formally identical prospects on the location of the reference point has been described as a “strict” definition of framing (Kuhberger, 1998) and the influence of contextual factors such as individual differences, norms and expectations on reference point location has been characterized as a “loose” definition (Kuhberger, 1998). The now classic illustration of framing in the strictest sense is Tversky and Kahneman’s (1981) Asian disease problem, reproduced below:

**Problem 1:** Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs is as follows:

- If Program A is adopted, 200 people will be saved.
- If Program B is adopted, there is 1/3 probability that 600 people will be saved and 2/3 probability that no people will be saved.

Which of the two programs would you favor?

Problem 2 included the same cover story as problem 1, with a different semantic formulation of the programs.

**Problem 2:**

- If Program C is adopted, 400 people will die.
- If Program D is adopted, there is 1/3 probability that nobody will die and 2/3 probability that 600 people will die.

Which of the two programs would you favor? (Tversky and Kahneman, 1981 p. 453)
Respondents were randomly presented with one of the two problems and asked to indicate their choice. Overwhelmingly (72 percent), respondents presented with the first problem chose Program A—the certain choice to save 200 people. Conversely, respondents presented with the second problem overwhelmingly (78 percent) chose Program D, the risky choice with the two-thirds probability that everyone will die and one-thirds probability that no one will. The outcomes are all formally identical in terms of probabilities. All four programs present either 200 lives saved for sure or an expected value of 200 lives saved for the risky choices) but are worded differently. Tversky and Kahneman pointed to the majority preference for Program A in problem 1 as indicative of risk aversion, with respondents framing the certain outcome of 200 lives saved as a gain, and the majority preference for Program D in problem 2 as indicative of risk-seeking, with respondents framing the certain outcome of 400 lives lost as a loss. These results support the notion that people have a general tendency toward risk aversion when presented with positively framed prospects and risk-seeking for negatively framed prospects (Tversky and Kahneman 1981; 1986; 1992). Tversky and Kahneman’s findings and corresponding theorizing have served as the basis for research on framing and have been consistently replicated in the decades since initial publication (Kuhberger, 1998).

Once a prospect has been framed (or coded) as a gain or a loss (again depending on prospect formulation and the norms, habits and expectations of the decision maker) prospect theory provides that an individual will then move on to an evaluative phase whereby he/she values the prospects and chooses the one with the highest value (Kahneman & Tversky, 1979). The valuation formula proposed (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992) is able to explain individual behavior that had given earlier theorists pause, including the aforementioned risk aversion, risk-seeking, and Allais’ (1953) illustration of nonlinear
preferences (i.e. differences between probabilities of .99 and 1.00 have a greater impact on
decision making than differences between .20 and .21).

The overall value of the framed prospect, \( V \), is expressed by two scales, \( \pi \) and \( v \). The
scale \( \pi \) refers to decision weight associated with the probability \( p \) of each prospect, \( \pi(p) \). This
reflects the impact of the prospect’s probability \( p \) on its overall value (Kahneman & Tversky, 1979). The scale \( v \) assigns to each prospect \( x \), the subjective value of the prospect \( v(x) \).

Prospects are framed as gains and losses relative to a reference point (Kahneman & Tversky,
1979) and \( v \) measures deviations from that reference point. Stated formally, prospect theory
proposes that individuals calculate the value of mixed gambles (i.e. gambles which include both
positive and negative outcomes, gambles with 0 as an outcome, and those with probabilities that
sum to less than 1) thusly:

\[
V = v(x) \times \pi(p) + v(y) \times \pi(q), \quad (eq. 6)
\]

The preceding captures one of prospect theory’s most important contributions—the
asymmetric value function \( (v) \) and its simultaneous representation of individual risk aversive and
risk-seeking behaviors. Figure 2.5 depicts a hypothetical value function, adapted from
Kahneman and Tversky (1979), and illustrates several of prospect theory’s most important
propositions. First, as noted above prospect theory is reference dependent (Barberis, 2013). It
frames gains and losses as deviations relative to a reference point, with prospects evaluated as
above the reference point being viewed as gains, and those below the reference point viewed as
losses (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992).

Second, the value function is S shaped, concave above the reference point—in the
domain of gains, favoring risk aversion, and convex below it—in the domain of losses, favoring
risk seeking (Kahneman, 2003b; Tversky & Kahneman, 1986). This asymmetry in the value
function also captures individual diminishing marginal utility or *diminishing sensitivity*. As noted above, diminishing sensitivity refers to the phenomenon whereby the further from a reference point additional increments of outcomes are, the smaller the increases in subjective value become (Holmes, et al., 2011). For example, the subjective value of the difference between $100 and $200 looms larger than the difference between $100,100 and $100,200.

Finally, the value function is sharply kinked about the reference point, with the steepness in the loss domain underlining greater sensitivity to losses, even small losses, than gains (Kahneman, 2003b; Barberis & Huang, 2007). This greater sensitivity is known as *loss aversion* (Kahneman & Tversky, 1979), and it provides that people are significantly more averse to losses relative to the reference point than they are attracted to equivalent gains (Rabin, 2000). For example, most people would turn down a gamble of (-$100, .50; $110, .50) because the pain of losing $100 outweighs the pleasure of winning $10 (Barberis, 2013). Scholars estimate that the loss-aversion-to-gain-attraction to be on the order of 2-2.5:1 (Kahneman, 2003b; Tversky & Kahneman, 1991; Rabin, 2000).

(Figure 2.5 adapted from Kahneman & Tversky, 1979, p. 279, figure 3)
The formula presented in Equation 6 also specifies how individuals transform objective probabilities into decision weights ($\pi$), which can then be used to calculate the value of prospects (Holmes, et al., 2011). Following the publication of their initial work elaborating prospect theory (1979), Kahneman and Tversky refined their ideas (particularly their formulation of the probability weighting function) into what they called cumulative prospect theory (Tversky & Kahneman, 1992). Essentially, whereas the earlier iteration of prospect theory only accommodated gambles involving two outcomes, cumulative prospect theory can be applied to gambles involving any number of outcomes (Barberis & Huang, 2007). Additionally, Tversky and Kahneman (1992) allowed for the provision of “different decision weights for gains and losses” (p. 302). Figures 2.6 and 2.7 illustrate the characteristic shape of the Tversky & Kahneman (1992) probability weighting function for gains and losses respectively.
Figure 2.6: Hypothetical Probability Weighting Function for Gains

Figure 2.7: Hypothetical Probability Weighting Function for Losses
Both Figures 2.6 and 2.7 exhibit probability weighting functions with a characteristic reverse S shape, with objective probabilities, $p$, on the x axis and weighted probabilities, $w(p)$, on the y axis. The dotted lines correspond to the predictions of utility theory (i.e. linear probability estimates) and the solid lines correspond to the predicted shape of the weighted probabilities under cumulative prospect theory.

Several important observations should be noted with regard to the probability weighting function. First and foremost is its illustration of how individuals tend to overweight extremely unlikely prospects, while simultaneously underweighting most other probabilities (Tversky & Kahneman, 1992; Holmes et al., 2011). This behavior, as is implied by the reverse S shaped functions, is most readily apparent in the widespread acceptance of both lotteries and insurance and explains why people generally prefer a very low probability chance to win $5000, to a certain gain of $5, and also prefer a certain loss of $5 over a very low probability chance of losing $5000 (Barberis, 2013). In both the gain (lottery) and loss (insurance) conditions, people are overweighting the probability of winning/losing $5000 and behaving accordingly.

Tversky and Kahneman’s (1992) probability weighting function also captures the large differences in decision weights placed on small probability differences at the extreme endpoints of the probability scale observed by Allais (1953; 1955). By contrast, people tend to be insensitive to changes in probabilities in the middle of the scale (Fennema & Wakker, 2007; Holmes et al., 2011). Finally, as is illustrated above, cumulative prospect theory suggests that the probability weighting functions for gains and losses are different, with the weighting function for gains showing greater curvature than that for losses. This points to the intriguing prospect that people may have, “different attitudes toward probability for gains than for losses,” (Fennema & Wakker, 1997 p. 55).
In the following section I shift away from a focus on prospect theory to a more robust discussion of role theory and the hypotheses derived from it. Following that, I return to our examination of prospect theory, with the aim of integrating both role and prospect theory to develop insight into how role theory may help to address unanswered questions in prospect theory, and, in turn, how prospect theory can enhance understanding of roles and behavior.

**Role Theory, Expectations, and Risk Evaluations**

Role theory provides that a role is an *expected* pattern or set of behaviors embedded within a social system (Biddle, 1979). More definitively, work roles can be described as a set of rules and expectations, held by employees and organizational members, which direct ‘at work’ behaviors (Davis & Taylor, 1979 p. xiii). Employees’ (role holder) expectations or beliefs about what a work role entails, as well as those with whom the employee interacts in the work place emerge as important components of the employees’ role (Ilgen & Hollenbeck, 1991). Work role expectations may include a wide range of both task-specific performance requirements (e.g. in the case of childcare providers, for example, observing and monitoring children’s play activities), and social requirements (e.g. organizational citizenship behavior) of one’s work (Dierdorff et al., 2012).

Indeed, Katz and Kahn (1978) argued that work role expectations are by no means restricted to material encompassed by a job description, and may include “…what the person should do, what kind of person he should be, what he should think or believe, and how he should relate to others” (p. 175). Framing our arguments with a broad conceptualization of work role expectations, I propose that risk evaluation, the evaluation of uncertainty regarding the potential for significant and/ or disappointing outcomes to be realized (Sitkin & Pablo, 1992), for the self or others, can be thought of as one such role expectation. Risk evaluation encompasses both
taking account for behavioral risk (anticipation of and care in the execution of work-related activities that are potentially risky personally) in a given work situation and the potential outcomes of these behaviors to others.

In many occupational contexts, risk evaluation is often considered concomitantly with safety climate perceptions and their related outcomes (c.f. Rundmo, 1996; 2000). However, role expectations in terms of risk evaluation can be distinguished conceptually from safety climate perceptions. Whereas safety climate perceptions tend to be conceptualized as capturing employees’ views pertaining to the overall pattern and signals regarding safety policies, procedures, practices (Zohar, 2000; 2003; 2010), and typically explore outcomes associated with safety behavior and occupational accidents (Clarke, 2010), risk evaluation more broadly focus on a full range of associated linkages, including safety related behaviors and occupational accidents (Rundmo, 1996), but also potentially positively valenced relationships such as entrepreneurial endeavors (Fini, Grimaldi, Marzocchi, & Sobrero, 2010), organizational performance (Singh, 1986), and individual curiosity (Maner & Gerend, 2007)

**Coworker Risk Propensity and Self-categorization**

Within organizations, roles are generated by normative expectations that reflect “…both the official demands of the organization and the pressures of informal groups” (Biddle, 1986 p. 73). A great deal of research has explored the consequences of role conflict for employees facing conflicting perceptions of the normative role expectations of the organization and informal social groups (Jackson & Schuler, 1985; Tubre & Collins, 2000). Recent work underlines the important influence that social groups can have on employees’ role perceptions. For example, Grant (2007) argued that as employees receive social feedback from coworkers, and others who influenced their behaviors, that they may shape their role identity around that
feedback. Similarly, Humphrey et al. (2007) demonstrated that, as social support—such as receiving advice and having friendships with coworkers—increases, so also does the likelihood of positive employee role perceptions. Consistent with scholarship on social identity and self-categorization (e.g. Tajfel & Turner, 1979; Turner, 1985), this research is suggestive of the importance of social group influence on individuals’ beliefs, norms, role expectations and behavior.

Self-categorization in particular emerges as an explanatory mechanism for the influence of social groups on employees’ role expectations. Self-categorization theory offers that individuals go through a cognitive process of social categorization between themselves and others in relation to relevant in-group or out-group prototypes (Hogg & Terry, 2000). Employees cognitively represent an individual (or abstraction of an ideal type), thought to be a stereotypical exemplar of a focal group, and then conform their own normative expectations to coincide with that representation (Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

Self-categorization highlights the tendency for individual members of a group to adopt positions that simultaneously conform to in-group norms, and distinguish the in-group from its social frame of reference (Hogg, Turner, & Davidson, 1990). In adopting this frame of reference, the group member cognitively represents a position that maximizes both similarities within the desired in-group, and the differences between the in-group and out-group, in what is described as meta-contrast (Hogg & Terry, 2000). The principle of meta-contrast does not suggest that individual group members conform to the average in-group position. Instead, it provides that individuals conform to the position that is most prototypical of the group, with prototypicality of in-group members being defined as “…the less a person differs from in-group
members and the more he or she differs from out-group members” (McGarty, Turner, Hogg, David, & Wetherell, 1992 p. 3). Accordingly, the prototype that best defines the group position is that which has the most in common with others in the in-group, in contrast with the relevant out-group or social frame (Hogg et al., 1990). Extending the principles of self-categorization to a consideration of employees’ risk evaluation, because the social group influences normative evaluations of risk (Hogg et al. 1990) and role perceptions in general (Humphrey et al., 2007), I theorize that the social group also may influence the degree that risk evaluation is perceived as encompassed by the work role. Here, I seek to extend theory in framing the potential for a more distal, but potentially no less significant, effect that social groups may have on employee risk-related role expectations (i.e. the extent to which an employee strongly views thinking about risk and its evaluation as a part of their work role); developing the influence of perceptions of coworker generalized (non-work-related) risk propensity.

Generalized risk propensity can be described as individuals’ general risk taking and risk avoidance tendencies (Sitkin & Pablo, 1992). Consistent with this frame, I define risk propensity as those non-work-related risk tendencies an employee perceives to be held amongst in-group coworkers. Perceiving others’ risk tendencies is a common task in organizational environments, and is critical for decision making, particularly when choices have to be made on others’ behalf (e.g., a childcare provider predicting parent and/or coworker preferences regarding when to intervene in rough play - Faro & Rottenstreich, 2006). I argue that perceptions of coworkers’ generalized risk propensity may influence employees’ expectations of approval from their social group when engaged in workplace risk-related behavior. Further, I argue that the expectation of approval and the degree that risk evaluation is perceived as an essential work role requirement are formed via the self-categorization process described above.
Workplace risk-related behavior can be defined as the execution of work-related activities that involve risk to one’s self and/or others. For example, in the case of childcare providers, immediately intervening in physical confrontations or rough play would constitute workplace risk-related behavior. The attendant expectation of coworker approval or disapproval then is simply the degree to which employees believe that such behavior would be approved of, or disapproved of by one’s coworkers.

Employees go through a cognitive process leading to a representation of a prototypical group member. This prototype encompasses normative behaviors consistent with that prototype. In groups with high, mean levels of generalized risk propensity, prototypes capture normative behaviors associated with risk propensity. Prototypical in-group representations are a stereotypical exemplar of maximal similarity with the in-group and maximal distinctiveness from the out-group or social frame (Hogg et al., 1990). Individuals bundle perceptions of group risk propensity with other adjacent positions stereotypically associated with risk propensity. In this heuristic process, individuals form probabilistic expectations regarding the extent that group members are likely to approve of particular behaviors and conform their behaviors to those normative expectations of the group stereotype as a whole, including those normative positions bearing on the degree to which risk evaluation is a required component of the work role.

Indeed, organizational scholars have repeatedly demonstrated the important influence played by stereotypes for influencing attitudes toward risk (c.f. Hsee & Weber, 1999; Siegrist, Cvetkovich, & Gutsher, 2002; Faro & Rottenstreich, 2006). Groups with high generalized risk taking propensity are more likely to be characterized by normative prototypes that include more extreme risk taking norms, decreasing the extent that individuals expect approval from their coworkers when engaged in workplace risk-related behaviors, and the degree to which
employees perceive risk evaluation as an element of the work role. In contrast, groups with low mean levels of risk propensity are more likely to be characterized by prototypes involving more extreme risk avoidance norms, increasing the extent that individuals expect approval from their coworkers when engaged in workplace risk-related behavior, and the degree to which they perceive risk evaluation as a required element of their work roles, leading to the following hypotheses:

Hypothesis 1: There is a negative association between coworker risk propensity and risk-related role expectations.

Hypothesis 2: There is a negative association between coworker risk propensity and coworker approval expectations.

Loose Framing and the Influence of Expectations on Individual Reference Points

While role theory helps us to understand how individual expectations are formed, and are perpetuated in the workplace, a critical question left unanswered is how individual expectations are translated to, and ultimately motivate subsequent workplace behavior. Indeed, role theorists have yet to weigh in on the extent to which behavior is a result of expectation informed “rule following” or “value-maximizing” (Montgomery, 1998). Enter prospect theory. Let us return for a moment to the discussion of framing and its influence on individual perceptions of the value function. Recall the loose definition of framing as presented above; i.e. the influence of contextual factors such as individual differences, norms and expectations on reference point location. With a focus on integrating role theory and prospect theory I first propose that role theory offers an explanation for how expectations may guide (and even lead to the generation of)
individual reference point location. With this focus I also heed recent calls for development of a more thorough understanding of reference point origination (Holmes, et al., 2011). Second, I argue that prospect theory offers an explanation for how individual expectations may be coded, framed, and translated into subsequent workplace behavior.

As noted above, individual expectations serve as important determinants of individual reference point location (Kahneman & Tversky, 1979; Tversky & Kahneman, 1986). Reference point location is an important element of prospect theory, because it is instrumental in the formulation of a prospect as a loss or a gain. Underlining the conceptual importance of reference points, Wiseman and Gomez-Mejia (1998) proposed that as the reference point rises, the likelihood of a gain frame being invoked decreases. These authors pointed to firm performance as a potentially important influence on individual reference point location. They argued that as firm performance rises, executives elevate their reference point. As a consequence, the probability of a gain frame for future firm performance decreases to the point where risk seeking behavior may be more likely. Further, Wiseman and Gomez-Mejia (1998) pointed to high targets for executive compensation for firms wishing to encourage risk-seeking behaviors. This again highlights the formation of reference points (in this case high reference points) as instrumental for invoking a loss frame.

In a similar vein, Fiegenbaum, Hart and Schendel (1996) noted that both individual and organizational decision making depends on whether decision makers frame their prospects as being above or below a particular reference point location. In developing what the authors termed strategic reference point theory, Fiegenbaum and colleagues (1996) proposed that organizations (and the individuals within them) respond in a risk-averse, threat-avoiding manner when presented with new information above their strategic reference point, and a risk-seeking,
daring manner when presented with new information that falls below their strategic reference point.

Returning to our initial contention highlighting role-theory-generated expectations as a driver of the emergence of reference point location, I point to research by Coughlan and Connolly (2001) suggesting that one’s expectations “…form a natural reference point in the manner of prospect theory’s value function…” (p. 214). These authors hypothesized that the magnitude of an individual’s expectation bearing on a salient outcome, in this case expected bowling scores and how satisfied the bowler expected to be, serves as a natural reference point. Outcomes with large deviations above and below expectations, the authors reported, corresponded to gain and loss frames respectively, consistent with prospect theory’s predictions.

Additional conceptual support for the role of expectations in reference point location can be found in the work of Koszegi & Rabin (2006; 2007), who argued that reference points are “fully determined by the expectations (emphasis in original) a person held in the recent past” (Koszegi & Rabin, 2006 p. 1141. Important amongst their theorizing was Koszegi and Rabin’s (2007) prediction that, when an individual has an expectation of risk, even if it can be avoided, they are less likely to be risk-averse. Further empirical support for the influence of expectations on reference point location is offered in Karle, Kirchsteiger & Peitz’s recent (2013) manuscript. In this research, the authors tested the notion that a person’s taste and price expectations for a pair of sandwiches affects their reference point location, which they then used to evaluate subsequent purchase intentions. They reported that those who preferred the more expensive sandwich ex ante were more likely to purchase the cheaper, less tasty product. The authors surmised that taste price expectations led participants to maintain a relatively high reference
point with respect to the sandwich being less expensive, and were in a loss frame when confronted with contrary pricing information.

From our discussion of reference points and the manner in which they are influenced by expectations, we now turn to a more explicit consideration of the process by which reference points influence framing, subsequent decision making and behavior. As noted above, role theory provides an explanation for the evolution of roles and corresponding behavior. But we understand less about the actual mechanism(s) responsible for translating these expectations into behavior. Indeed, an important question for role theorists concerns the extent that behavior arises from rule (or role) following, or from considerations of value and utility (Montgomery, 1998). I argue that prospect theory can be a useful tool for understanding the cognitive process involved in linking expectations and behavior. It is our contention that individuals form and locate reference points based on their expectations, and that it is a value-maximizing consideration of the outcome of their anticipated behavior, informed by reference point location and gain or loss frames, that leads to subsequent decision making and action.

There is a wealth of conceptual support for this expectation. Indeed, the entirety of the expected utility and prospect theory literatures reviewed above presupposes just such a contention. However, to our knowledge, previous authors have not attempted to link the previously disparate role theory and prospect theory literatures into a model encompassing elements of both. One related stream of research has examined the process through which role expectations are translated into behavior, in what has come to be known as identity control theory (Stets & Burke, 2005). Identity control theory describes the process as a self-regulating feedback system, whereby individuals’ role expectations (meanings) serve as a reference point by which actual perceived meanings in the situation are evaluated and compared (Stets & Burke,
A cognitive process of comparison takes place between individuals’ role expectations and perceived situational meanings. Identity control theorists maintain that if any discrepancy between role expectations and perceived situational meanings is present, an error signal is generated producing distress, motivating behavior to catalyze situational meaning that is in accord with role expectations (Burke, 1991).

Consistent with our arguments, identity control theory scholars underline the importance of role expectations as a driver of individual reference point formation, although very little has been written about the nature of its role (Stets & Burke, 2005). However, our argument departs from the identity control theory explanation in two important ways. First, a critical question left unanswered in the identity control model described above is, if behavior is motivated by discrepancies between expectations and situational meanings, what motivates behavior when there is no or little discrepancy? Stets and Burke (2005) would argue that “…when the discrepancy is small or decreasing, people feel good and continue to do what they are already doing” (p. 45). This leaves an unopened “black box” as to the actual mechanism underlying the translation of role expectations into behaviors.

Second, identity control theory advances the notion that, when individuals do not or are not able to act in ways that bring role expectations and situational meanings into alignment, they experience distress and anxiety (Burke, 1991). I argue that individuals both can and do make decisions that seemingly depart from role expectations; and what’s more they do it all of the time. The following example is adapted from the seminal Burke (1991). “Consider a woman whose identity as a mother includes, among other components, a certain degree of powerfulness (emphasis in original),” (p. 839). As the story goes, she perceives situational meanings that fail to match her role expectations for powerfulness.
Identity control theory posits that the woman would feel distress as a result of the discrepancy between role expectations and situational meanings, changing her behavior to bring the situational meanings into greater accord with her role expectations. What if she, instead, acts in a way that is contrary to her role expectations; behaving in a meek manner or failing to be assertive? While identity scholars may point to notions of conflicting identity salience and multiple identities, themselves underexplored areas (Striker & Burke, 2000), I argue that this phenomenon may be due to reference point location, framing and subsequent location of a prospect on an individual’s value function, consistent with prospect theory.

To elaborate on the contention above, I argue that behavior is a result of the cognitive decision process enumerated by prospect theory. Specifically, I suggest that role and approval expectations establish the reference point with which subsequent decision (and action) is to be evaluated. The higher the level of role and approval expectations, the higher the reference point location with regard to specific behavioral expectation(s). Further, the presence (or absence) of group approval vis-à-vis expected role behavior serves to help frame prospects as a gain or loss. Individuals with high a reference point (high role/approval expectations) location, who receive confirmatory (high approval) information from their social group are likely to view prospects in terms of maintaining the status quo. Similarly, individuals with low reference point location (low role/approval expectations) who receive low levels of approval information are likely to view behavioral prospects in terms of maintaining the status quo.

However, prospect theory is most useful in helping us gain a better understanding of how discrepancies between role/approval expectations may influence decision-making and subsequent workplace behavior in the following manner. Individuals with a low reference point (low role/approval expectations) location, who receive disconfirmatory feedback (i.e. high levels
of coworker indicated approval for workplace behaviors targeted at risk mitigation) are likely to view prospects as a *gain* from their prior value reference point, (adopting a risk-averse profile) and behave in a more conservative manner with regards to at work-related risk behavior. In contrast, individuals with a high reference point (high role/approval expectations) location, who receive disconfirmatory feedback (*i.e.* low levels of coworker indicated approval for workplace behaviors targeted at risk mitigation) are likely to view prospects as a *loss* from their prior value reference point, (adopting a risk-seeking profile) and behave in a more risk-forward manner at work. Table 2.4 presents a summary of the anticipated discrepancy effects and their corresponding prospect theory driven frames.
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Risk-Related Role Expectations</th>
<th>Coworker Approval Expectation</th>
<th>Coworker Indicated Approval</th>
<th>Effect on the Relationship with Workplace Risk-Related Behavior</th>
<th>Prospect Theory Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 5</td>
<td>Low</td>
<td>-</td>
<td>High</td>
<td>Strengthens - positive</td>
<td>Gain</td>
</tr>
<tr>
<td>Hypothesis 5</td>
<td>High</td>
<td>-</td>
<td>Low</td>
<td>Attenuates - negative</td>
<td>Loss</td>
</tr>
<tr>
<td>Hypothesis 6</td>
<td>-</td>
<td>Low</td>
<td>High</td>
<td>Strengthens - positive</td>
<td>Gain</td>
</tr>
<tr>
<td>Hypothesis 6</td>
<td>-</td>
<td>High</td>
<td>Low</td>
<td>Attenuates - negative</td>
<td>Loss</td>
</tr>
</tbody>
</table>
It should be noted that prospect theory would predict that the magnitude of approval plays a role in framing and subsequent behavior, pointing to perhaps counterintuitive outcomes when reference points are very high, and corresponding approval is at a moderate level. Individuals with high reference point location receiving moderate levels of approval feedback are likely to frame prospects as a loss, thus behaving in a manner that adopts higher levels of at work risk behavior. Taken as a whole, these two streams of thought—socially derived roles and subsequent expectations forming natural reference points, and reference points establishing gain or loss frames and motivating subsequent behavior - offer an explanation for the mechanism through which expectations are translated into behavior, leading to the following hypotheses:

Hypothesis 3: There is a positive association between risk-related role expectations and the likelihood of workplace risk-related behavior.

Hypothesis 4: There is a positive association between coworker approval expectations and likelihood of workplace risk-related behavior.

Hypothesis 5: Coworker indicated approval moderates the relationship between risk-related role expectations and workplace risk-related behavior, such that when coworker indicated approval is high the relationship is more strongly positive and when coworker indicated approval is low the relationship is negative.

Hypothesis 6: Coworker indicated approval moderates the relationship between coworker approval expectation and workplace risk-related behavior such that when
coworker indicated approval is high the relationship is more strongly positive and when
coworker indicated approval is low the relationship is negative.
CHAPTER 3

METHODOLOGY

Overview of Research Design

Study 1: Identification of risk-related role expectations and refinement using exploratory factor analysis (EFA).

An extensive review of the literature was conducted focused on risk-related role expectations within the context of the childcare provider role. I identified several generalized measures of risk, including the domain-specific risk-taking scale (Weber, Blais, & Betz, 2002; Blais & Weber, 2006), and risk-taking/harm avoidance measures found in both the Jackson Personality Inventory (Jackson, 1977) and the Minnesota Multiphasic Personality Inventory (Butcher, 1989). Further, based on the work of Dierdorff and colleagues (e.g. 2007; 2012), I consulted the O*Net occupational categories for both childcare workers and preschool teachers, identifying those items that were most often indicated as essential elements of the work role. From this process, and in consultation with three subject matter experts (SMEs) in the childcare industry, an initial pool of 23 items was developed. In a series of successive interviews with the SMEs, the initial 23 item pool was reduced to seven items that were deemed an accurate and parsimonious reflection of risk-related role expectations in a childcare setting (Appendix A). In consultation with our SMEs, five of the retained items were worded in such a way as to evoke safety focused risk-related role expectations in childcare (e.g. Childcare workers should immediately intervene in physical confrontations between children, and Childcare workers
should never leave children unattended), while two of the items were worded to evoke independence focused risk-related role expectations in childcare (e.g. Childcare workers should allow children autonomy, and Childcare workers should allow the potential for minor injury to help learning/development).

Participants and Design. The data used in this study were collected from two hundred and ninety-six undergraduate students enrolled in an introductory management course at a large southeastern university. Six cases were excluded from the analyses because of excessive missing data. Of the remaining two hundred and eighty-eight participants, sixty-one percent were male. Participants voluntarily agreed to take part in this study in exchange for course credit.

Procedure. Participants were informed that the researchers were interested in developing better selection tools for childcare providers. They were further informed that employers typically look to hire childcare providers of a similar age and ability level to themselves. The participants were presented with a scenario (Appendix B) from Bristol Child Care, including information describing the setting, the number of coworkers and typical day to day responsibilities of childcare providers at Bristol. Participants were then asked to imagine that they were an employee in this setting. The 7-item risk-related role expectations scale was administered with respondents being asked to describe, on a 7-point scale, the extent to which they agreed that each item described the role expectations of a childcare worker.

EFA. A principal axis factor analysis, with direct oblimin rotation, was performed to assess the underlying factor structure and to identify items with loadings less than .4, or cross-loadings higher than .4. All items had loadings of .43 or higher indicating acceptable loadings (Hair, Black, Babin, Anderson, & Tatham, 1998). Although I requested an oblimin rotation, the
results from this factor analysis suggested a one factor structure, with an eigenvalue for the factor of 3.23, explaining 46% of the variance in risk-related role expectations. Not surprisingly, the items associated with independence focused risk-related role expectations had negative loadings while all other items loaded positively onto the single factor. The reliability of the seven-item scale (with independence-related items being reverse coded) was $\alpha = .789$, indicating acceptable coefficient alpha.

**Study 2: Convergent and discriminant validity of the risk-related role expectations scale.**

In order to assess convergent and discriminant validity, the risk-related role expectations scale must demonstrate a predictable pattern of relationships with other constructs in its nomological network (Cronbach & Meehl, 1955). I examined how the risk-related role expectations scale is distinct from other available measures by assessing its convergent and discriminant validity via confirmatory factor analysis (Gerbing and Anderson, 1988).

**Participants and Design.** I recruited participants with the assistance of Amazon’s Mechanical Turk (mTurk), a popular crowdsourcing tool for linking social scientists to diverse and/or hard-to-find participant populations (Chandler, Mueller, & Paolacci, 2013). Prospective participants voluntarily agreed to take part in this study in exchange for monetary compensation and were asked to indicate whether or not they were currently working, or had worked within the last five years, in childcare or early childhood education. Of the 378 prospective participants, 35% (n = 133) indicated that they had or were currently working in childcare/early childhood education and were allowed to continue with the survey. Females comprised 62% of the sample, 74% of respondents were Caucasian, and they had an average of six years of work experience.
The average participant’s age was 33, 48% were married, 49% reported having children, and 94% of the sample identified themselves as American.

The survey informed participants that the researchers were interested in developing a better understanding of how employees think about risk in the workplace. They were assured that all responses were confidential and that participation was completely voluntary. Because the survey was administered completely online, facilitated by mTurk, participants were able to choose the time and location most preferable for completing the survey. The survey consisted of three measures, asking respondents to indicate, on a 7-point scale, their attitudes toward risk-related role expectations, individual risk propensity and conscientiousness.

**Measures.**

*Risk-related role expectations.* Risk-related role expectations was measured using the seven items retained from study one. Sample items included, “Childcare workers should immediately intervene in physical confrontations between children,” and “Childcare workers should allow children autonomy.” Unless otherwise noted, participants responded to measures using a 7-point scale, with responses ranging from 1 (strongly disagree) to 7 (strongly agree). The reliability of the seven-item scale (with independence focused risk-related role expectations items being reverse coded) was $\alpha = .712$, indicating acceptable coefficient alpha.

*Risk propensity.* Risk propensity was measured using six items from the risk-taking subscale of the International Personality Item Pool (Goldberg, 1999; Goldberg et al., 2006). Sample items included, “I take risks”, and “I am willing to try anything once”, $\alpha = .827$.

*Conscientiousness.* Conscientiousness was measured using five items from the conscientiousness facet of the “Big Five” Inventory (John, Donahue, & Kentle, 1991). Sample
Analysis Approach. A construct commonly used to capture risk propensity is the risk-taking subscale of the International Personality Item Pool (Goldberg, 1999; Goldberg, Johnson, Eber, Hogan, Ashton, & Cloninger, 2006). I expected the risk-taking subscale to be negatively and modestly associated with risk-related role expectations because they are similar but conceptually distinct constructs. Discriminant validity was evaluated by the inclusion of the conceptually and empirically distinct construct of conscientiousness. Conscientiousness refers to both individual achievement and responsibility (Hough, 1992), with conscientious people being more likely to be simultaneously dependable and focused on goal-setting, commitment and attainment (Christian, Bradley, Wallace, & Burke, 2009). Recent meta-analytic evidence points to a weak or non-existent association between individual conscientiousness and risk behaviors (Christian et al., 2009). Thus, I expected to find a weak or null association between risk-related role expectations and conscientiousness.

Confirmatory factor analysis was performed using Mplus version 7.3 (Muthén & Muthén, 2010). The three multi-item measures (i.e. risk-related role expectations, risk propensity, and conscientiousness) were modeled as (1) a four-factor model with the risk propensity, conscientiousness, safety focused risk related role expectations, and independence focused risk-related role expectation items each loading onto a discrete factor; (2) a three-factor model with risk propensity, conscientiousness, and both safety focused and independence focused risk-related role expectation items loading onto discrete factors; and (3) a one factor model with all items loading onto a single factor. The four-factor model demonstrated significantly better fit than the three-factor and one-factor nested alternative models (see Table 3.1) and generally
acceptable fit based on established guidelines (c.f. Hu & Bentler, 1999; Browne & Cudeck, 1993), with a comparative fit index (CFI) of .91, a root-mean-square error of approximation (RMSEA) value of .078 and a standardized root mean square residual (SRMR) of .081.

Table 3.1
Confirmatory Factor Analysis of Nested Models

<table>
<thead>
<tr>
<th>Model</th>
<th>χ²</th>
<th>df</th>
<th>χ²/df</th>
<th>Δχ²</th>
<th>Δdf</th>
<th>CFI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-factor</td>
<td>234.183</td>
<td>129</td>
<td>1.815</td>
<td></td>
<td></td>
<td>.91</td>
<td>.078</td>
<td>.081</td>
</tr>
<tr>
<td>3-factor</td>
<td>257.535</td>
<td>132</td>
<td>1.951</td>
<td>23.352***</td>
<td>3</td>
<td>.89</td>
<td>.085</td>
<td>.094</td>
</tr>
<tr>
<td>1-factor</td>
<td>650.224</td>
<td>135</td>
<td>4.816</td>
<td>416.041***</td>
<td>6</td>
<td>.53</td>
<td>.17</td>
<td>.17</td>
</tr>
</tbody>
</table>

Correlations between the risk-related role expectations scale factors and risk propensity were examined. The expectation was that correlations would be significant and negative. That is to say, I anticipated that for individuals who have a high level of risk propensity there will be a significant negative correlation with their risk-related role expectations. Significant correlations between constructs that are theoretically related can be used as an indicator of convergent validity of new constructs (e.g. Anastasi, 1982; Hinkin, 1998). The correlations (presented in Table 3.1) provide partial support for convergent validity and hint at a more complex relationship between risk-related role expectations and risk propensity. For example, the correlation between the safety focused risk-related role expectations and risk propensity was negative as expected, but non-significant (r = -.12, n.s.). However, the correlation between risk propensity and independence focused risk-related role expectations was significant and positive (r = .48, p < .01). While it is clear that the two constructs are theoretically related, and share complimentary facets in the nomological network, their association may be more nuanced than previously thought.

Discriminant validity refers to unrelated constructs demonstrating negligible relationships and was examined by reviewing the correlations between risk-related role expectations and
conscientiousness. The expectation was that the correlations between the two constructs would be positive and moderate to weak. Correlations that are moderate and substantially lower than scale reliabilities provide evidence for discriminant validity (Campbell & Fiske, 1959). The correlations in general are supportive of discriminant validity, with the correlation between independence focused risk-related role expectations and conscientiousness positive and non-significant (\(r = .16, n.s.\)), and the correlation between safety focused risk-related role expectations and conscientiousness moderate but significant (\(r = .48, p < .01\)).

**Study 3: Coworker risk propensity, risk-related role expectations, coworker approval and likelihood of behavior.**

Study three offered a test of the full hypothesized model, utilizing a sample of working adults.

**Participants and Design.** Similar to Study 2, the data used in this study were collected from a sample of 1797 working adults from Amazon’s Mechanical Turk. Participants voluntarily agreed to take part in this study in exchange for monetary compensation. Of the 1797 total respondents, 439 (24.4%) indicated that they were currently working, or had within the last five years worked, in childcare or early childhood education and were permitted to continue. Females comprised 61 percent of the sample, 70 percent of the respondents indicated that they were Caucasian, with an average of five years of work experience, and an average age of 33. Fifty-seven percent of the participants were unmarried, with an average of one child living with them.

**Procedure.** As in Study 2, participants were informed that the researcher was interested in developing a better understanding of risk and what may lead to individual differences in attitudes toward risk. They were assured that all responses were confidential and that
participation was completely voluntary. Because the survey was administered completely online, facilitated by mTurk, participants were able to choose the time and location most preferable for completing the survey. The participants were presented with the survey instrument (Appendix C), were asked to recall their current, or most recent experience, working in childcare. Respondents then completed a series of questions gauging their own attitudes toward risk propensity, social desirability and risk-related role expectations in childcare. Participants were then asked to indicate the number and names of the coworkers with whom they most frequently interacted. While participants were assured that coworker’s names would be kept confidential, they were invited to use a nickname or alias for their coworkers, if they were not comfortable including the real names. They then gave their perceptions of their coworkers’ attitudes toward risk in the questions that followed, and finally, indicated their own likelihood of engaging in workplace risk-related behavior.

**Measures.**

*Coworker risk propensity.* Coworker risk propensity was measured using six items from the risk-taking subscale of the International Personality Item Pool (Goldberg, 1999; Goldberg et al., 2006). Participants responded to items focused on the extent to which they accurately described their coworker’s personality. Sample items include, “This person takes risks”, and “This person is willing to try anything once.” The respondent’s evaluation of each coworker was averaged and aggregated to create a group-level measure of coworker risk propensity. I averaged the item scores to form total scores for coworker risk propensity. The reliability of the aggregated measure was $\alpha = .888$, indicating acceptable coefficient alpha.

*Risk-related role expectations.* Risk-related role expectations was measured using the seven items derived from studies one and two. Sample items included, “Childcare workers
should immediately intervene in physical confrontations between children,” and “Childcare workers should allow children autonomy.” Unless otherwise noted, participants responded to measures using a 7-point scale, with responses ranging from 1 (strongly disagree) to 7 (strongly agree). I averaged the item scores to form total scores for risk-related role expectations, $\alpha = .703$, indicating acceptable coefficient alpha.

**Coworker approval expectation.** Coworker approval expectation was measured by asking respondents to rate the extent to which they agree that their coworkers would approve of the behaviors elaborated in the risk-related role expectations scale. Sample items included, “This coworker would approve of me preventing children from wrestling or roughhousing,” and “This coworker would approve of me providing constant supervision.” I averaged the item scores to form total scores for coworker approval expectation, $\alpha = .781$, indicating acceptable coefficient alpha.

**Coworker indicated approval.** Coworker indicated approval was measured by asking respondents to rate the extent to which they agree that their coworkers had indicated approval of the behaviors elaborated in the risk-related role expectations scale. As above, sample items included, “This coworker has shown approval of me preventing children from wrestling or roughhousing,” and “This coworker has shown approval of me providing constant supervision.” I averaged the item scores to form total scores for coworker indicated approval, $\alpha = .735$, indicating acceptable coefficient alpha.

**Workplace risk-related behavior.** Workplace risk-related behavior was measured by asking respondents to rate the likelihood that they would engage in the behaviors elaborated in the risk-related role expectations scale. Behaviors included—immediately intervening in physical confrontation, preventing children from roughhousing, allowing the potential for minor
injury to help learning/development (reverse coded), analyzing situations and choosing those least likely to pose risk, allowing children autonomy (reverse coded), and providing constant supervision. I averaged the item scores to form total scores for workplace risk-related behavior, \( \alpha = .742 \), indicating acceptable coefficient alpha.

*Control variables.* I controlled for participants’ age, gender, individual risk propensity, perceived attitude homophily — the degree to which participants feel that their coworkers are similar to them, and social desirability. Age has been linked to risk-taking propensity, with scholars observing that risk-taking tends to decrease with age (c.f. Vroom & Pahl, 1971; MacCrimmon & Wehrung, 1990). Likewise, empirical research points to gender as potentially related to risk-taking propensity, with males significantly more likely than females to engage in risk-taking activities (Byrnes, Miller & Schaffer, 1999). Individual risk propensity was measured using six items from the risk-taking subscale of the International Personality Item Pool (Goldberg, 1999; Goldberg et al., 2006). Participants responded to items focused on the extent to which they accurately described their own personality. Sample items included, “I seek adventure”, and “I know how to get around the rules.” Perceived homophily also has been linked to higher perceptions of liking (Ensher & Murphy, 1997), satisfaction, and performance (Turban & Jones, 1988). Homophily was included as a control because its potential relationship with risk-related role expectations insofar as participants indicating greater perceived similarity with coworkers might be more likely to adopt a similar orientation *vis-à-vis* risk expectations.

Attitude homophily was measured using eight items from the attitude homophily scale (McCroskey, McCroskey, & Richmond, 2006). Sample items included, “The members of this group behave like me,” and “The members of this group have a lot in common with me.” Social desirability was included to determine if measures were biased due to participants’ tendency to
respond in a desirable, rather than truthful manner. According to Podsakoff, MacKenzie, Lee and Podsakoff (2003) social desirability is a general tendency of people to respond in a manner that presents them in a favorable light, rather than their true feelings. As Podsakoff (2003) and colleagues observe, social desirability can be a problem because it can act as a suppressor that may mask relationships. Social desirability was measured with sixteen items from the social desirability scale (Stober, 2001). Sample items include, “In traffic I am always polite and considerate of others,” and “I always eat a healthy diet.” Participants chose either “true” or “false” as their response. True responses to items 2, 3, 4, 7, 8, 9, 11, 12, 13, and 15 were awarded one point, and false responses to items 1, 5, 6, 10, 14, and 16 were awarded one point. Scores were summed across all items. Thus, participant raw scores ranged from 0, indicating very low social desirability response tendency, to 16, indicating very high social desirability response tendency.
CHAPTER FOUR

RESULTS

Analysis

Mplus 7.3 (Muthén & Muthén, 2010) was used for all subsequent analyses. Table 4.1 shows the descriptive statistics, intercorrelations and Chronbach’s alpha for the study variables. To test the hypotheses, I followed the framework outlined by Edwards and Lambert (2007). This framework addresses concerns with the Baron and Kenny (1986) causal steps approach by offering a procedure for how to assess the presence, strength and significance of indirect effects. Indeed, Preacher, Rucker and Hayes (2007) present a detailed explanation of the procedure to be used to evaluate the hypotheses in this current study. To evaluate the hypotheses I investigated three nested models. In the first model, the mediator variables (risk-related role expectations and coworker approval expectation) were regressed on the independent variable (coworker risk propensity) and were specified to mediate coworker risk propensity’s relationship with the dependent variable (workplace risk-related behavior). The second model predicts workplace risk-related behavior by the independent variable, the mediator, the moderator (indicated approval) and the interaction between the mediator and the moderator. This type of model is referred to as “second stage” moderated mediation by Edwards and Lambert (2007) and is the hypothesized model. The final model, combines moderation of both the first and second stage indirect effects with moderation of the direct effect and is referred to as the “total effects” model (Edwards & Lambert, 2007).
Table 4.1
Study 3 Means, Correlations, and Standard Deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>32.7</td>
<td>9.13</td>
<td></td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender</td>
<td>.61</td>
<td>.49</td>
<td></td>
<td>.11*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Individual Risk Propensity</td>
<td>3.2</td>
<td>1.15</td>
<td>.81</td>
<td>-.33**</td>
<td>-.33**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceived Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homophily</td>
<td>5.3</td>
<td>1</td>
<td>.94</td>
<td>.02</td>
<td>.12**</td>
<td>-.09</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Social Desirability</td>
<td>10.3</td>
<td>3.33</td>
<td></td>
<td>.06</td>
<td>-.01</td>
<td>-.16**</td>
<td>.25**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Coworker Risk Propensity</td>
<td>3.4</td>
<td>1</td>
<td>.89</td>
<td>-.27**</td>
<td>-.28**</td>
<td>.51**</td>
<td>-.22**</td>
<td>-.20**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Risk-Related Role Expectations</td>
<td>5.4</td>
<td>.84</td>
<td>.7</td>
<td>.17**</td>
<td>.25**</td>
<td>-.32**</td>
<td>.26**</td>
<td>.19**</td>
<td>-.29**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Coworker Approval Expectation</td>
<td>5.2</td>
<td>.83</td>
<td>.78</td>
<td>.25**</td>
<td>.24**</td>
<td>-.27**</td>
<td>.38**</td>
<td>.13**</td>
<td>-.45**</td>
<td>.67**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9. Coworker Indicated Approval</td>
<td>4.2</td>
<td>.64</td>
<td>.74</td>
<td>.22**</td>
<td>.20**</td>
<td>-.22**</td>
<td>.43**</td>
<td>.18**</td>
<td>-.40**</td>
<td>.55**</td>
<td>.80**</td>
<td>-</td>
</tr>
<tr>
<td>10. Risk-Related Behavior</td>
<td>5.4</td>
<td>.99</td>
<td>.74</td>
<td>.20**</td>
<td>.20**</td>
<td>-.33**</td>
<td>.30**</td>
<td>.15**</td>
<td>-.34**</td>
<td>.75**</td>
<td>.75**</td>
<td>.67**</td>
</tr>
</tbody>
</table>

Note. \( n = 439 \)

\( p < .05; \quad \star\star p < .01. \)
Table 4.2 presents the results of the models used to test the hypotheses. Two of the five variables included as controls, gender and social desirability were found to have a significant relationship with risk-related role expectations and were retained in all models. Their inclusion did not sufficiently attenuate the relationships of interest to alter any significance levels. The remaining three controls, age, individual risk propensity, and perceived attitude homophily did not demonstrate significant associations with any of the variables of interest and were removed from subsequent analyses.

The first model found on Table 4.2, the mediation model, explains 14% of the variance in risk-related role expectations, 20% of the variation in coworker approval expectation and 55% of the variance in workplace risk-related behavior ($p < .01$). In the subsequent models the predictor variables were mean centered (Aiken & West, 1991) to address potential multicollinearity between the predictors and the interaction term. Model 2, the hypothesized second stage moderated mediation, explains 14% of the variance in risk-related role expectations, 20% of the variation in coworker approval expectation and 56% of the variance in workplace risk-related behavior ($p < .01$). Model 3, the total effects model, explains 14% of the variance in risk-related role expectations, 22% of the variation in coworker approval expectation and 56% of the variance workplace risk-related behavior ($p < .01$). A comparison of the generalized $R^2$ for each model, with a higher number indicating better fit, was evaluated to assess if the generalized variance ($R^2_{Generalized}$) explained by model 2 (70%) is significantly more than the generalized variance explained by model 1 (69%). Comparisons between models 1 and 2, ($Q = .968$, $W = 14.165$, $d = 7$, $p < .05$) suggest that model 2 explains significantly more of the variance than model 1. A comparison of model 2 ($R^2_{Generalized} = .70$) and model 3 ($R^2_{Generalized} = .70$) demonstrated that model 3 did not explain significantly more of the variance than model 2 ($Q = $
.98, \( W = 7.16, d = 4, \ ns \). Taken as a whole these results suggest that the hypothesized second stage model has greater predictive power than the alternatives.
Table 4.2  
*Study 3 Path Analytic Tests of Hypothesized and Alternative Models*

<table>
<thead>
<tr>
<th>Path estimated</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender → Risk-Related Role Expectations $^c$</td>
<td>.19**</td>
<td>.19**</td>
<td>.19**</td>
</tr>
<tr>
<td>Social Desirability → Risk-Related Role Expectations $^c$</td>
<td>.15**</td>
<td>.15**</td>
<td>.15**</td>
</tr>
<tr>
<td>Coworker Risk Propensity → Risk-Related Role Expectations</td>
<td>-.21**</td>
<td>-.21**</td>
<td>-.21**</td>
</tr>
<tr>
<td>Coworker Risk Propensity → Risk-Related Behavior</td>
<td>-.01</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Risk-Related Role Expectations → Risk-Related Behavior</td>
<td>.52**</td>
<td>.50**</td>
<td>.50**</td>
</tr>
<tr>
<td>Coworker Risk Propensity → Coworker Approval Expectation</td>
<td>-.45**</td>
<td>-.45**</td>
<td>-.44**</td>
</tr>
<tr>
<td>Coworker Approval Expectation → Risk-Related Behavior</td>
<td>.37**</td>
<td>.30**</td>
<td>.30**</td>
</tr>
<tr>
<td>Coworker Indicated Approval → Risk-Related Behavior</td>
<td>.20**</td>
<td>.36**</td>
<td>.36**</td>
</tr>
<tr>
<td>Risk-Related Role Expectations $^c$ X Coworker Indicated Approval → Risk-Related Behavior</td>
<td></td>
<td>-.10†</td>
<td>-.10†</td>
</tr>
<tr>
<td>Coworker Approval Expectation $^c$ X Coworker Indicated Approval → Risk-Related Behavior</td>
<td></td>
<td>-.18*</td>
<td>-.18*</td>
</tr>
<tr>
<td>Coworker Risk Propensity $^c$ X Coworker Indicated Approval → Risk-Related Role Expectations</td>
<td></td>
<td></td>
<td>-.03</td>
</tr>
<tr>
<td>Coworker Risk Propensity $^c$ X Coworker Indicated Approval → Coworker Approval Expectation</td>
<td></td>
<td></td>
<td>-.12**</td>
</tr>
</tbody>
</table>

$^c$ Gender and Social Desirability controls were found to have significant relationships with Risk-Related Role Expectations and were included in the path models.

$R^2$ Risk-Related Role Expectations | .14** | .14** | .14** |
$R^2$ Coworker Expected Approval | .20** | .20** | .22** |
$R^2$ Risk-Related Behavior | .55** | .56** | .56** |
$R^2$ Generalized | .69 | .70 | .70 |

*Note.* $n = 439$. Table values are standardized path estimates from the estimated model.

Model 1 is the mediation model; Model 2 is the second stage conditional indirect effects model; Model 3 is the total effects model.

† $p < .10$; * $p < .05$; ** $p < .01$.
I then examined the path estimates for the hypothesized model to reveal if coworker risk propensity had a significant relationship with both risk-related role expectations and coworker approval expectation. Hypotheses 1 and 2 predicted that the relationships would be significant and negative. In support of these hypotheses, coworker risk propensity was negatively related to risk-related role expectations ($\beta = -.21, p < .01$). Likewise, the relationship between coworker risk propensity and coworker approval expectation was significant and in the hypothesized direction ($\beta = -.45, p < .01$). Taken together these findings support hypotheses 1 and 2 highlighting the negative relationships between coworker risk propensity, risk-related role expectations and coworker expected approval.

Hypotheses 3 and 4 predicted a positive relationship between both risk-related role expectations and coworker approval expectation, and the dependent variable workplace risk-related behavior. A further examination of the path estimates for the hypothesized model suggests that both relationships are positive and significant. In support of hypothesis 3, the path from risk-related role expectations to workplace risk-related behavior is significant and in the hypothesized direction ($\beta = .50, p < .01$). Similarly, in support of hypothesis 4, the relationship between coworker approval expectation and workplace risk-related behavior was positive and significant ($\beta = .30, p < .01$).

The interactions, shown in Table 4.2, were evaluated for significance (Hypotheses 5 and 6). Hypothesis 5 predicted that coworker indicated approval would strengthen the positive association (positive interaction term) between risk-related role expectations and workplace risk-related behavior. The results presented in Table 4.2 demonstrate that the interaction between risk-related role expectations and coworker indicated approval had a marginally significant ($\beta = -.10, p = .07$) relationship with workplace risk-related behavior. The marginal significance of this
relationship coupled with its negative sign would appear to refute hypothesis 5, that coworker indicated approval strengthens the positive association between risk-related role expectations and workplace risk-related behavior. Thus, hypothesis 5 was formally rejected.

I hypothesis 6, I predicted that coworker indicated approval strengthens the positive association (positive interaction term) between coworker approval expectation and workplace risk-related behavior. As can be seen in Table 4.2, the interaction term is significantly related to workplace risk-related behavior ($\beta = -.26, p < .05$), but in the opposite direction of what was hypothesized, suggesting that coworker indicated approval attenuates the positive association between coworker approval expectation and workplace risk-related behavior. Thus, hypothesis 6 was formally rejected.

Despite the formal rejection of the moderation hypotheses and consistent with Edwards and Lambert (2007), Preacher et al. (2008), and others, I examined the conditional indirect effects at different levels of the moderator, coworker indicated approval, to assess moderated mediation, and to develop a more nuanced understanding of the role played by coworker indicated approval in the relationships between risk-related role expectations, coworker approval expectation, and workplace risk-related behavior. The mediating effect of risk-related role expectations was examined at $\pm 1$ standard deviation around the mean of coworker indicated approval. At high levels of coworker indicated approval, the conditional indirect effect was negative and significant (coworker indicated approval high = -.13, $p < .01$), which suggests that when coworkers indicate high levels of approval, risk-related role expectations is negatively related to workplace risk-related behavior (inconsistent with hypothesis 5). Similarly, at low levels (coworker indicated approval low = -.24, $p < .01$), the conditional indirect effect remained negative and significant, suggesting that when coworkers indicate low levels of approval, risk-
related role expectations is negatively related to workplace risk-related behavior (consistent with hypothesis 5).

Likewise, the mediating effect of coworker approval expectation was examined at ± 1 standard deviation around the mean of coworker indicated approval. At high levels of coworker indicated approval, the conditional indirect effect was negative and non-significant (coworker indicated approval high = -.02, ns). At low levels of coworker indicated approval, the conditional indirect effect remained negative but was significant, (coworker indicated approval low = -.21, p < .01), consistent with hypothesis 6. Taken together these findings suggest that the moderating influence of coworker indicated approval on the relationships between risk-related role expectations, coworker expected approval, and workplace risk-related behavior may be more nuanced than previously thought.

Post hoc Analysis

As has been mentioned, the preceding analysis points to a potentially more complex relationship between the variables risk-related role, expectation, coworker expected approval, coworker indicated approval, and workplace risk-related behavior. A major conceit in this dissertation’s development, and indeed in prospect theory more broadly, is that the discrepancy between expectations and actual experience are an important driver of behavioral outcomes. Consistent with this line of reasoning, are the analysis techniques advocated by Edwards and colleagues (c.f. Edwards & Parry, 1993; Edwards, 1994; Edwards, 2007; Edwards & Cable, 2009) to ascertain congruence via polynomial regression and response surface analysis. While the goal here is to explore how discrepancies, and their magnitudes, influence workplace risk-related behavior, the analysis techniques used by congruence scholars are identical, even if the outcomes of interest are not.
The polynomial regression approach. Following the recommendations of Edwards and his colleagues, to illustrate the potential influence of discrepancies between risk-related role expectations, and coworker expected and indicated approval on workplace risk-related behavior, I estimated two regression equations corresponding to hypotheses 5 and 6, wherein the outcome, workplace risk-related behavior (Z) was regressed on risk-related role expectations (X), coworker indicated approval (Y), the interaction between them (XY and the squared risk-related role expectations and coworker indicated approval terms (hypothesis 5). For hypothesis 6, coworker expected approval was included in the equation rather than risk-related role expectations. The general representation of the equations modeled took the form of:

\[ Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e, \text{ (eq.7)}, \]

Figures 4.1 and 4.2 represent the response surfaces corresponding to hypotheses 5 and 6. Plotted on the X axis are the values for risk-related role expectations (Figure 4.1) and coworker approval expectations (Figure 4.2) respectively. The Y axis in both figures corresponds to coworker indicated approval and the Z axis in both figures corresponds to the outcome variable, workplace risk-related behavior. The solid line, running from the near corner to the far corner in each figure represents the Y = X line, the line of perfect congruence between expectations and indicated approval. The dashed line, running diagonally from left to right represents the Y = -X line, the line of incongruence or discrepancy, whereupon expectations and indicated approval differ.

A visual inspection of the surface features from Figures 4.1 and 4.2 reveals several general observations. First, in both cases the slope of the surface corresponding to the Y = X line is positive, underlining the important roles that risk-related role expectations, coworker approval expectation, and coworker indicated approval play in influencing the upward trend of workplace
risk-related behavior. Additionally, the positive slope of the surfaces corresponding to the points X = -3, Y = -3 to X = -3, Y = 3, lends some visual support for hypotheses 5 and 6. That is to say, as the discrepancy between risk-related role expectations and coworker indicated approval (hypothesis 5, Figure 4.1) increases, with low levels of risk-related role expectations and high levels of coworker indicated approval, their association to workplace risk-related behaviors increases. Likewise as the discrepancy between coworker expected approval and coworker indicated approval (hypothesis 6, Figure 4.2) increases, with low levels of coworker expected approval and high levels of coworker indicated approval, their association to workplace risk-related behaviors increases. However, the predicted decrease in their association with workplace risk-related behaviors when levels of risk-related role expectations and coworker approval expectations are high and coworker indicated approval is low did not manifest itself (c.f. Figures 4.1 & 4.2 slope from X = -3, Y = -3 to X = 3, Y = -3).
RESPONSE SURFACE FOR RISK-RELATED ROLE EXPECTATIONS AND INDICATED COWORKER APPROVAL
PREDICTING WORKPLACE RISK-RELATED BEHAVIOR

\[ Z = 5.32 + .5X + .47Y - .04X^2 - .15XY + .24Y^2 \]
Figure 4.2

RESPONSE SURFACE FOR EXPECTED AND INDICATED COWORKER APPROVAL
PREDICTING WORKPLACE RISK-RELATED BEHAVIOR (Z = 5.32 + .3X + .47Y + .16X^2 - .26XY + .24Y^2)
Beyond a visual inspection of surface features, response surface analysis also allows us to test various post hoc hypotheses as they pertain to the relationships of interest. Table 4.3 presents the results of the two quadratic regression equations discussed above, along with additional information pertaining to the slopes of the lines $Y = X$, and $Y = -X$. The column labeled *shape of the $Y = X$ line* provides a statistical confirmation of one of our visual observations regarding the slope of the $Y = X$ line. If we let the constraint $a_1 = b_1 + b_2$, where $b_1$ corresponds to the beta for risk-related role expectations in Table 4.3, equation 1 and $b_2$ corresponds to coworker indicated approval, we can determine whether or not the slope of $Y = X$, the line of congruence, is equal to zero. For equation 1, the result is positive and significant ($a_1 = .97, p < .01$), suggesting that when risk-related role expectations and coworker indicated approval are congruent and high, workplace risk-related behavior is also high. The same can be said for Table 4.3, equation 2, where we see a positive and significant ($a_1 = .77, p < .01$) slope of the $Y = X$ line. This result suggests that when coworker expected approval and coworker indicated approval are in agreement and high, workplace risk-related behavior is also high.

Additionally, if we let the constraint $a_2 = b_3 + b_4 + b_5$, with $b_3$ corresponding to the squared X term in both equations 1 and 2, $b_4$ corresponding to the interaction term, and $b_5$ corresponding to the squared Y term, we can evaluate the contour of the response surface *vis-à-vis* the $Y = X$ line. If $a_2$ is positive and significant, that points to a convex (curved upward) response surface, and if negative and significant $a_2$ demonstrates a concave surface. In equation 1 the slope is non-significant, while in equation 2, it is marginally significant and positive, ($a_2 = .14, p = .07$), pointing to a slight upward surface curvature along the $Y = X$ line. This result suggests that as both coworker approval expectation and coworker indicated approval increase, workplace risk-related behavior increases.
Table 4.3  
*Results from Quadratic Regressions of Workplace Risk-Related Behavior on Risk-Related Role Expectations, Coworker Approval Expectation and Coworker Indicated Approval*

<table>
<thead>
<tr>
<th>Quadratic regression equation</th>
<th>Shape of Y = X line</th>
<th>Shape of the Y = -X line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b₁+b₂</td>
<td>b₁-b₂</td>
</tr>
<tr>
<td>X Y X² XY Y²</td>
<td>b₁</td>
<td>b₃</td>
</tr>
<tr>
<td>1. Risk-Related Role Expectations (X) Coworker Indicated Approval (Y)</td>
<td>.50**</td>
<td>.47**</td>
</tr>
<tr>
<td>2. Coworker Approval Expectation (X) Coworker Indicated Approval (Y)</td>
<td>.30**</td>
<td>.47**</td>
</tr>
</tbody>
</table>

*Note. n = 439. Table values are unstandardized.† p < .10; * p < .05; ** p < .01.*
Similar to the preceding, the column labeled *shape of the Y = -X line* provides additional information regarding the line of incongruence or discrepancy. If we constraint $x_1 = b_1 - b_2$ it is possible to ascertain whether the slope of the line $Y = -X$ is significantly different than zero. In both equations 1 and 2 from Table 4.3, the slopes appear to be non-significant. The constraint $x_2 = b_3 - b_4 + b_5$, provides information about the shape and character of the surface *vis-à-vis* the $Y = -X$ line, with a significant positive result pointing to convex surface and a significant negative result demonstrating a convex surface. As can be seen in Table 4.3, the $x_2$ constraint in both equations 1 and 2 is positive and significant. These results suggest that workplace risk-related behavior increases as both risk-related role expectations and coworker indicated approval (equation 1), and coworker approval expectation and coworker indicated approval (equation 2) deviate from one another. Taken as a whole, the findings of the response surface analysis further point to the complexity of the relationships between risk-related role expectations, coworker expected approval, coworker indicated approval, and workplace risk-related behavior.
CHAPTER FIVE

DISCUSSION AND CONCLUSION

In the preceding, Study 1 was aimed at clarifying risk-related role expectations in the workplace, specifically the childcare/early childhood education context, and developing a survey instrument to measure those role expectations (risk-related role expectations in childcare scale). Findings from Study 1 generally support the face validity and factor structure of the proposed measure, where I, in conjunction with subject matter experts, identified seven items that are believed to be a parsimonious reflection of the focal construct. Study 2 focused on the further refinement and validation of the risk-related role expectations in childcare scale and its use as a tool for continued exploration of the relationships in its nomological network. The results from Study 2 point to the risk-related role expectations measure having discriminant validity, with mixed results pertaining to convergent validity.

In Study 3, utilizing a sample of 439 adults with recent occupational experience in childcare/early childhood education, and gleaned from Amazon’s Mechanical Turk crowdsourcing tool, I investigated whether or not the normative social environment (namely coworker risk propensity), played a role in influencing employee risk-related role expectations and employee expectations of coworker approval, for behaviors targeted at risk mitigation. Results support my prediction that when coworker risk propensity is high, it both (hypothesis 1), decreases the likelihood that employees will view risk evaluation as an important part of their
work role (risk-related role expectations); and (hypothesis 2), decreases the expectation that coworkers would approve of behaviors targeted at risk mitigation in the workplace.

Study 3 also explored the linkages between both risk-related role expectations and coworker approval expectation, and workplace risk-related behavior, positing that (hypothesis 3) when an employee has high levels of risk-related role expectations, *i.e.* the employee strongly views thinking about risk and its evaluation as a part of their work role, it increases the likelihood of that employee engaging in behaviors targeted at risk mitigation; and (hypothesis 4), when an employee strongly believes that their coworkers would approve, it increases the likelihood of their engaging in behaviors targeted at mitigation. Results from Study 3 support these contentions and point to both the importance of risk evaluation and the employee’s social environment for guiding subsequent workplace risk-related behavior.

In recognition of the importance that risk evaluation plays in guiding decision-making in general and in prospect theory’s predictions on the nature of that decision-making process, I also explored how discrepancies between (hypothesis 5) employee risk-related role expectation and coworker indicated approval; and (hypothesis 6) coworker approval expectation and coworker indicated approval, may guide the employee’s subsequent workplace risk-related behavior, hypothesizing that such discrepancies would prompt either a gain frame or loss frame, based on the magnitude and direction of the discrepancy. Findings from Study 3 and subsequent post hoc analysis offer mixed support for these contentions. While results from both the simple slopes analysis and post hoc response surface analysis support the gain frame prediction that when there is a large discrepancy between both risk-related role expectations (H5), and coworker approval expectation (H6), and coworker indicated approval, with coworker indicated approval being high and both risk-related role expectations and coworker expected approval being low, employees
are more likely to engage in workplace behaviors aimed risk mitigation, the loss frame predictions, focusing on discrepancies involving low levels of coworker indicated approval and high levels of both risk-related role expectations and coworker approval expectations, eliciting a reduced likelihood of engaging in workplace behaviors aimed at risk mitigation, were non-significant.

**Theoretical Implications and Directions for Future Research**

In preparing the preceding, I have endeavored to make the following three theoretical contributions to the literature. First, given the significance of risk evaluation across a wide variety of occupational contexts (Pablo, 1999), and the acknowledged importance of role expectations as a driver of employee behavior (Katz & Kahn, 1978), I have offered an extension of role theory by explicitly recognizing risk evaluation as an element of the specific performance requirements of a work-role. This contribution is of critical importance as we consider the broad linkages between role expectations and behavior (Biddle, 1979; Katz & Kahn, 1978; Dierdorff et al., 2012), and their specific connections to workplace risk-related outcomes. In recognizing that risk evaluation can be conceptualized as an element of one’s work-role expectations, we can begin to turn our attention to developing a better understanding of how risk evaluation may influence a broad range of organizationally relevant outcomes. Indeed, scholars may wish to continue these lines of inquiry by exploring the linkages between risk-related role expectations and outcomes that prior research has identified as salient to risk, including safety behavior and occupational accidents (Clarke, 2010; Rundmo, 1996), entrepreneurial endeavors (Fini, Grimaldi, Marzocchi, & Sobrero, 2010), organizational performance (Singh, 1986), and individual curiosity (Maner & Gerend, 2007).
Second, this dissertation offers additional support underlining the importance of social context in the workplace, focusing on the normative expectations that may arise as a result of coworker risk propensity. Given the critical impact of employees’ general social environment for shaping employee behavior and performance (Halbesleben, 2006; Humphrey et al. 2007), I extend current theory by demonstrating that employee perceptions of coworker general attitudes toward risk propensity influence perceptions of the degree to which risk evaluation is a core element of their work-role requirements. While the importance of coworkers in one’s workplace social environment is indisputable, examining other social factors may be of interest to future researchers. For example, a relatively recent meta-analysis by Ng and Sorensen (2008) reviews and confirms the importance of perceived supervisor support in influencing employee attitudes and behaviors. Likewise, Halbesleben and Stoutner (2013) point to the influence of customers on employee attitudes and behaviors. Future research may wish to explore these important contributors to an employee’s social environment and their influence of risk-related role expectations.

Third, through the integration of role theory and prospect theory, I have argued that the decision-making process elaborated by prospect theory can help to deepen understanding of the mechanism through which employees’ role expectations and expectations of coworker approval are translated into work behavior. This linkage between role theory and prospect theory allows us to gain additional insight into not only how subsequent levels of indicated approval, and their discrepancy with expectations influencing workplace risk-related behavior, can be thought of as deviations along prospect theory’s value function, but also how employees’ role-informed expectations serve as anchors for the reference points elaborated, but not well understood (Barberis, 2013; Koszegi & Rabin 2006; 2007; Holmes et al., 2011), by prospect theory.
Related to these extensions of role and prospect theories is a consideration of the role played by individual agency on the part of the decision-maker. In the preceding, I asked respondents to evaluate a risky scenario with the potential to significantly and/or negatively impact another person. One of the concepts I was interested in exploring was how a childcare provider might respond to the potential injury of a child in his or her charge, and the extent to which they viewed that evaluation as a part of their work-role. This is a scenario in which, at least from the childcare provider’s perspective, a child may have little agency. If the childcare provider immediately intervenes in a physical confrontation between children, that childcare provider is making the decision regarding acceptable level of risk for that child. One interesting area for further research would be to examine the potential discrepancies in the way in which individuals evaluate risk to themselves, and risk to others. Do people evaluate risk and respond differently depending on whether or not they or others have agency with regards to the potential risk?

Another potentially interesting area for further inquiry would be to examine the connections between risk-related role expectations, prospect theory, and dual-process theories of decision-making. Kahneman (2011) observes that decision-making can be characterized as a dual-process, wherein fast thinking processes, subject to the biases and heuristics elaborated by prospect theory and prototype comparison - a la social identity (Tajfel & Turner, 1979) and role theory (Biddle, 1979; Katz & Kahn, 1978), operate all of the time. Slow thinking processes, according to Kahneman (2011) and characterized by deliberate, effortful, analytical evaluations, are employed far less frequently. When presented with complex evaluations, Kahneman (2011) argues that individuals tend to simplify based on a few salient characteristics and rely on fast thinking decision-making. Thus, when a childcare provider is presented with a risk evaluation
such as whether or not to immediately intervene in a physical confrontation, the fast thinking process is really evaluating a far easier scenario: how would I feel if a child got hurt?

Under most circumstances the fast thinking processes serve us well. However, future research may wish to explore the circumstances under which that fast thinking, simplifying, process may be suboptimal. In a childcare context, if employees are likely to respond to a risk-related expectation or behavior by engaging the fast thinking decision-making apparatus, evoking a hurt child and how that would make us feel, then that employee may be far more likely to choose a conservative course of action, no matter the actual information at hand. Additionally, if we wish to develop a better understanding of the circumstances under which risk-related role expectations may lead to suboptimal decision making, future scholarship may wish to explicitly consider the contextual social factors, such as psychological safety (Edmondson, 1999), organizational citizenship behavior (Bachrach, Powell, Collins, & Richey, 2006), and cohesiveness (Mullin & Copper, 1994), to name a few, that potentially influence that decision-making process of translating employee risk-related role expectations into subsequent behavior.

**Practical Implications**

The results elaborated here indicate that, within the context of childcare, employees do view risk evaluation as an important part of their work-roles. However, there is variability in the extent to which individual employees view risk evaluation as important. Here I focused on the social cues (namely the coworkers) in an employee’s environment and their influence on risk evaluation. As I have mentioned, this research points to the negative influence coworker risk propensity may have on risk-related role expectations. Employers wishing to attenuate this
negative relationship may wish to take efforts aimed at carefully curating formal workgroup membership. In a workplace context where conservative attitudes and behaviors \textit{vis-à-vis} risk are valued (\textit{e.g.} childcare context), managers may wish to encourage employee exposure to coworkers with general attitudes characterized as risk-averse. Likewise, in a workplace context where less conservative attitudes and behaviors with regards to risk are valued (\textit{e.g.} professional athlete), managers may seek to foster employee relationships with coworkers whose general attitude is more risk-seeking.

The variability evidenced in employee attitudes toward risk-related role expectations also presents managers and organizations with an opportunity to help shape those expectations. While additional research will be necessary to empirically confirm my assertions, we may assume that the same managerial and organizational factors that influence role expectations will influence risk-related role expectations. For example, scholars have pointed to the importance of interventions aimed at clarifying employee role expectations, as useful in influencing role perceptions (Schaubroeck, Ganster, Sime, & Editman, 1993). Managers seeking to help shape employee risk-related role expectations may wish to specify what those role expectations are that are valued by the organization \textit{a priori}. Likewise, scholars have pointed to the importance of culture as informing role understanding (Ashforth & Mael, 1989). Organizations may wish to evaluate the signs, symbols, and artifacts of their culture to determine if they are consistent with the risk-related role expectations that they seek to engender in their employees.

\textbf{Study Limitations}

Despite the contributions outlined above, the preceding is not without limitations. One limitation is that the data from Study 3 are cross-sectional and therefore no causal inferences can
be made. Future researchers should consider the effects of both risk-related role expectations and coworker approval expectation on workplace risk-related behavior over time. It would be of interest to explore whether or not the positive influence of coworker approval expectation on workplace risk-related behavior accumulates over time or is relatively static.

An additional limitation has to do with the occupational context chosen. While I have chosen the childcare context because of its (one would expect) generally conservative attitudes towards risk and safety, and thus an important environment in which to explore the hypothesized relationships and their practical implications, a compelling argument can be made that attitudes and role expectations pertaining to risk are rich and varied across all occupational contexts. Future researchers may wish to explore risk-related role expectations outside of the childcare context and their relationship with workplace risk-related behavior.

A third limitation is the nature in which the Study 2 and 3 data were collected. Due to the administration procedure of mTurk, I cannot unequivocally confirm that respondents were working or had worked in childcare/early childhood education within the last 5 years. Future research utilizing a field study would address authenticity concerns. Likewise future researchers may wish to capture a direct measure of coworker indicated approval (i.e. measuring how and when coworkers actually indicated their approval), rather than the retrospective measure included in Study 3. Doing so would have greater face validity and potentially be able to speak to the temporal sequence of relationships.

Conclusion

In this dissertation, I have taken an important foray into the investigation on the nature of risk as it pertains to role in the workplace, its evaluation, how it may influence decision-making
and subsequent behavior. In it, I have developed a conceptual model and theoretical justification for viewing risk evaluation as an integral element of role expectations. In emphasizing the importance of the workplace social environment, I have offered additional clarity on the nature of socially-derived normative expectations and their influence on risk evaluation. Further, I have proposed a novel linkage between role theory (Biddle, 1979) and prospect theory (Kahneman & Tversky, 1979) to explain the process used in translating risk-related role expectations into behavior, a process that is bound by the constraints and heuristics elaborated in prospect theory’s value function.
REFERENCES


APPENDIX A

Risk-related role expectations

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Childcare workers should provide constant supervision</td>
<td>a</td>
</tr>
<tr>
<td>2. Childcare workers should allow children autonomy</td>
<td>b</td>
</tr>
<tr>
<td>3. Childcare workers should immediately intervene in physical</td>
<td>a</td>
</tr>
<tr>
<td>confrontations between children</td>
<td></td>
</tr>
<tr>
<td>4. Childcare workers should prevent children from wrestling or</td>
<td>a</td>
</tr>
<tr>
<td>roughhousing</td>
<td></td>
</tr>
<tr>
<td>5. Childcare workers should allow potential for minor injury to</td>
<td>b</td>
</tr>
<tr>
<td>help learning/development</td>
<td></td>
</tr>
<tr>
<td>6. Childcare workers should analyze situations and choose those</td>
<td>a</td>
</tr>
<tr>
<td>least likely to pose risk</td>
<td></td>
</tr>
<tr>
<td>7. Childcare workers should never leave children unattended</td>
<td>a</td>
</tr>
</tbody>
</table>

*Note.*  

a Safety focused expectations;  
b Independence focused expectations.
APPENDIX B

Study 1 Scenario

Setting:

In order to provide us with feedback that we can use in the design of an effective selection template, you will have to put yourself in the place of an employee at the childcare facility. In order to do this, please imagine that you are a childcare worker or a pre-school teacher, employed by a childcare center that caters to full-time pre-school aged children. The name of the center is Bristol Care. A description of the situation you are imagining is as follows:

As a level-II child care specialist, you are responsible for attending to, and caring for children between the ages of 6 months to 5 years in an open-system campus in a self-contained child care center. On a daily basis your duties are likely to include assisting clients (the children in your care) with recreational activities, including active indoor play, singing, make-believe, dress-up, use of playground equipment, and playground games.

Your work will require you to be actively involved in helping children with learning activities including art projects, painting, drawing, working with pencils and crayons, storytelling, and role-playing, object identification, and color display.

You will be actively involved in the facilitation of social activities including dance, nature walks, group projects, and elder-pairing activities where nursing home residents are brought to campus to spend time with the children.

In addition, you will be responsible for actively assisting the clients in your care with feeding during snack time and lunch time, dressing before and after outdoor play, grooming and hygiene activities including washing hands, after-toiler washing and diaper changing.

As a level-II specialist, you will be responsible for selecting, designing, and creating instructional methods and procedures to facilitate learning, and actively looking for ways to help your coworkers and supervisor perform these activities as well. At Bristol Care, which has a total of seven classrooms, you will be working with several other level II-specialists. Each has primary responsibility for their own classroom of children, with a maximum of 12 children per room; and secondary responsibility for all of the children at the facility.

Instructions:

In order to develop better instruments for selection, it is important to get a sense for how workers in this context think about their work. In what follows you will be asked to indicate your level of agreement with each statement. Each question is rated on a seven-point scale, with 1 indicating strongly disagree, and 7 indicating strongly agree.
APPENDIX C

Study 3 Survey Instrument

Qualtrics Survey Software  https://universityofalabama.az1.qualtrics.com/ControlPanel/Ajax.php?ac...

Are you currently working, or have you within the last five years worked in childcare or early childhood education? (e.g. childcare provider, elementary school teacher, summer camp/youth group counselor)

☐ Yes
☐ No

Block 1

Thinking about your time working in childcare or early childhood education, how many coworkers do you interact with on a regular basis? Coworkers would include other teachers, childcare providers, counselors, etc., with whom you interact at least several times during your work day. This number does not include your supervisor.

☐ 0 Coworkers
☐ 1 Coworker
☐ 2 Coworkers
☐ 3 Coworkers
☐ 4 Coworkers
☐ 5 Coworkers
☐ More than 5 Coworkers

Did you count your supervisor as a coworker in the previous question?

☐ Yes
☐ No
Please answer the following question without including your supervisor. Thinking about your time working in childcare or early childhood education, how many coworkers do you interact with on a regular basis? Coworkers would include other teachers, childcare providers, counselors, etc., with whom you interact at least several times during your work day.

- 0 Coworkers
- 1 Coworker
- 2 Coworkers
- 3 Coworkers
- 4 Coworkers
- 5 Coworkers
- More than 5 Coworkers

You are invited to participate in a research study. The purpose of this study is to expand understanding of what may lead to individual differences in attitudes toward risk and how employee risk behaviors may impact work-related outcomes, such as task performance, workplace safety, and job satisfaction. You will be asked to answer some biographical questions, and questions related to perceptions of risk. The questionnaire will ask, among other things, for you to evaluate your coworkers on a number of attributes. All responses are strictly confidential.

**Block 2**

The first set of questions is for classification purposes only. This information helps to determine if there are meaningful differences between demographic groups.

What is your age?
What is your gender?

- Male
- Female

What country do you live in?

What is your race?

- White
- Native American
- African American
- Hispanic
- Asian
- Other
What is your education level (please click the highest degree completed)

- High school
- 1-year certificate
- Some college
- Associates degree
- Bachelors degree
- Masters degree
- Doctoral degree

What is your marital status

- Married
- Single

How many children under 18 live in your household?

[Blank]

How many years of experience do you have in your current job?

[Blank]

What is your job title?

[Blank]

Block 3
The following questions will ask about you, your work in childcare/early childhood education, and your coworkers. Indicate your answers by clicking on the appropriate box.

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Indicate how well each of the following items describes you

**I do a thorough job**

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree
I do things efficiently

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

I make plans and follow through with them

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
I am a reliable worker

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
- First Click: 0 seconds
- Last Click: 0 seconds
- Page Submit: 0 seconds
- Click Count: 0 clicks

I persevere until the task is finished

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
I am easily distracted

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

I can be somewhat careless

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
I tend to be lazy

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

- First Click: 0 seconds
- Last Click: 0 seconds
- Page Submit: 0 seconds
- Click Count: 0 clicks

I tend to be disorganized

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Block 4
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Consider the appropriateness of these statements as a description of your own personality.

I enjoy being reckless
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I take risks
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds  
Last Click: 0 seconds  
Page Submit: 0 seconds  
Click Count: 0 clicks

I seek danger

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I know how to get around the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

I am willing to try anything once

☐ Strongly Disagree
☐ Disagree
☐ Somewhat Disagree
☐ Neither Agree nor Disagree
☐ Somewhat Agree
☐ Agree
☐ Strongly Agree

I seek adventure

☐ Strongly Disagree
☐ Disagree
☐ Somewhat Disagree
☐ Neither Agree nor Disagree
☐ Somewhat Agree
☐ Agree
☐ Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

I would never make a high risk investment

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I would never go hang-gliding or bungee jumping

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

I stick to the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

I avoid dangerous situations

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Block 25
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Consider the appropriateness of these statements as a description of your own personality.

I sometimes litter.

- True
- False

I always admit my mistakes openly and face the potential negative consequences.

- True
- False

In traffic, I am always polite and considerate of others.

- True
- False

I always accept others' opinions, even when they don't agree with my own.

- True
- False
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

I take out my bad moods on others now and then

- True
- False

There has been an occasion when I took advantage of someone else.

- True
- False

In conversations, I always listen attentively and let others finish their sentences.

- True
- False

I never hesitate to help someone in case of emergency.

- True
- False
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

When I have made a promise, I keep it--no ifs, ands or buts.

☐ True
☐ False

I occasionally speak badly of others behind their back.

☐ True
☐ False

I would never live off of other people.

☐ True
☐ False

I always stay friendly and courteous with other people, even when I am stressed out.

☐ True
☐ False
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

During arguments, I always stay objective and matter-of-fact.

☐ True
☐ False

There has been at least one occasion when I failed to return an item that I borrowed.

☐ True
☐ False

I always eat a healthy diet.

☐ True
☐ False

Sometimes I only help because I expect something in return.

☐ True
☐ False
We would like to get a sense of your general preferences

Most modern theories of decision making recognize that decisions do not take place in a vacuum. Individual preferences and knowledge, along with situational variables can greatly impact the decision process. To demonstrate that you've read this much, just go ahead and select both red and green among the alternatives below, no matter what your favorite color. Yes, ignore the question below and select both of those options.

What is your favorite color?

☐ White
☐ Black
☐ Red
☐ Pink
☐ Green
☐ Blue

Block 5

For this next set of questions, indicate how much you agree that the following statements are important job expectations for a childcare/early childhood education worker.

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Indicate how well each item below describes how you feel about job expectations for a
childcare/early childhood education worker

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Childcare workers should allow children to settle their own disagreements.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should provide constant supervision.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Childcare workers should allow children autonomy (to do what they want).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should prevent children from running on the playground.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Childcare workers should prevent children from hanging on playground equipment.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should immediately intervene in physical confrontations between children.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Childcare workers should prevent children from wrestling or roughhousing

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should immediately assist with untied shoelaces.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Childcare workers should prevent children from rocking back in their chairs.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should prevent children from playing outside if not dressed warmly

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

Childcare workers should immediately sanitize toys/playground equipment after use.

○ Strongly Disagree
○ Disagree
○ Somewhat Disagree
○ Neither Agree nor Disagree
○ Somewhat Agree
○ Agree
○ Strongly Agree

Block 6

Indicate how well each item below describes how you feel about job expectations for a childcare/early childhood education worker

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Childcare workers should separate children with food allergies during meal periods (e.g. peanuts).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should always stick to the rules and policies established by administration.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Childcare workers should allow the potential for minor injury to help learning/development (e.g. falling from seesaw).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should keep disagreements with supervisors over how to best care for the children to themselves.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Childcare workers should never come to work intoxicated.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should never come to work with a contagious condition.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Childcare workers should actively monitor how much children eat during meal to prevent overeating.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should attempt to work with children on developmental or emotional problems prior to informing administration/parents.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Childcare workers should analyze situations and choose solutions least likely to pose risk to children.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should develop teaching/care providing solutions that introduce new and/or adventurous concepts & activities for children.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Childcare workers should avoid putting children in dangerous situations.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Childcare workers should never leave children unattended.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

**Block 7**

This next set of questions will ask you about your coworkers. If you are currently working in childcare/early childhood education, think about the coworkers with whom you most frequently interact. If you are not currently working in childcare/early childhood education but have within the past five years, recall the coworkers with whom you most frequently interacted in that job.

What is the first name of one of your coworkers with whom you frequently interact? If
you don't feel comfortable using their real name, feel free to write an alias.

What is the first name of a second coworker with whom you frequently interact? If you don't feel comfortable using their real name, feel free to write an alias.

What is the first name of a third coworker? If you don't have a third coworker with whom you frequently interact, please leave this field blank.

What is the first name of a fourth coworker? If you don't have a fourth coworker with whom you frequently interact, please leave this field blank.

What is the first name of a fifth coworker? If you don't have a fifth coworker with whom you frequently interact, please leave this field blank.

**Coworker 1 A**

Think about your coworker $(${q://QID87/ChoiceTextEntryValue}$) for the next series of questions.
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q$/QID87/ChoiceTextEntryValue} enjoys being reckless

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q$/QID87/ChoiceTextEntryValue} takes risks

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID87/ChoiceTextEntryValue$ seeks danger
○ Strongly Disagree
○ Disagree
○ Somewhat Disagree
○ Neither Agree nor Disagree
○ Somewhat Agree
○ Agree
○ Strongly Agree

$q://QID87/ChoiceTextEntryValue$ knows how to get around the rules
○ Strongly Disagree
○ Disagree
○ Somewhat Disagree
○ Neither Agree nor Disagree
○ Somewhat Agree
○ Agree
○ Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID87/ChoiceTextEntryValue\}$ is willing to try anything once

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$\{q://QID87/ChoiceTextEntryValue\}$ seeks adventure

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q:/QID87/ChoiceTextEntryValue$ would never make a high risk investment

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q:/QID87/ChoiceTextEntryValue$ would never go hang-gliding or bungee-jumping

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID87/ChoiceTextEntryValue\}$ sticks to the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$\{q://QID87/ChoiceTextEntryValue\}$ avoids dangerous situations

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 1 B
Indicate how well each item below describes ${q://QID87/ChoiceTextEntryValue}'s expected level of approval for the following childcare/early childhood education worker activities.

**These page timer metrics will not be displayed to the recipient.**
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

${q://QID87/ChoiceTextEntryValue} would approve of me providing constant supervision

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree
$(q://QID87/ChoiceTextEntryValue) would approve of me allowing children autonomy (to do what they want).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$(q://QID87/ChoiceTextEntryValue) would approve of me immediately intervening in physical confrontations between children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
${q://QID87/ChoiceTextEntryValue} would approve of me preventing children from wrestling or roughhousing

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

${q://QID87/ChoiceTextEntryValue} would approve of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw)

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
$(q://QID87/ChoiceTextEntryValue)$ would approve of me analyzing situations and choosing solutions least likely to pose risk to children

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds  
Last Click: 0 seconds  
Page Submit: 0 seconds  
Click Count: 0 clicks

$(q://QID87/ChoiceTextEntryValue)$ would approve of me never leaving children unattended

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree
Coworker 1 C

Indicate how frequently $q://QID87/ChoiceTextEntryValue$ has shown approval to me for the follow childcare/early childhood education worker activities

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID87/ChoiceTextEntryValue$ has shown approval of me providing constant supervision

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$\{q://QID87/ChoiceTextEntryValue\} has shown approval of me allowing children autonomy (to do what they want)

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

$\{q://QID87/ChoiceTextEntryValue\} has shown approval of me immediately intervening in physical confrontations between children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
Has shown approval of me preventing children from wrestling or roughhousing.

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

Has shown approval of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw).

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID87/ChoiceTextEntryValue) has shown approval of me analyzing situations and choosing solutions least likely to pose risk to children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

$(q://QID87/ChoiceTextEntryValue) has shown approval of me never leaving children unattended

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

Coworker 2 A

Think about your coworker $(q://QID89/ChoiceTextEntryValue) for the next series of questions.

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID89/ChoiceTextEntryValue) enjoys being reckless

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID89/ChoiceTextEntryValue) takes risks

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID89/ChoiceTextEntryValue) seeks danger

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID89/ChoiceTextEntryValue) knows how to get around the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID89/ChoiceTextEntryValue) is willing to try anything once

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID89/ChoiceTextEntryValue) seeks adventure

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID89/ChoiceTextEntryValue)$ would never make a high risk investment

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID89/ChoiceTextEntryValue)$ would never go hang-gliding or bungee-jumping

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID89/ChoiceTextEntryValue) sticks to the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID89/ChoiceTextEntryValue) avoids dangerous situations

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 2 B

Indicate how well each item below describes $(q://QID89/ChoiceTextEntryValue)'s expected level of approval for the following childcare/early childhood education worker activities.
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID89/ChoiceTextEntryValue\}$ would approve of me providing constant supervision

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$\{q://QID89/ChoiceTextEntryValue\}$ would approve of me allowing children autonomy (to do what they want).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID89/ChoiceTextEntryValue$ would approve of me immediately intervening in
physical confrontations between children

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree

$q://QID89/ChoiceTextEntryValue$ would approve of me preventing children from
wrestling or roughhousing

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID89/ChoiceTextEntryValue$ would approve of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw)

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID89/ChoiceTextEntryValue$ would approve of me analyzing situations and choosing solutions least likely to pose risk to children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID89/ChoiceTextEntryValue$ would approve of me never leaving children unattended

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 2 C

Indicate how frequently $q://QID89/ChoiceTextEntryValue$ has shown approval to me for the follow childcare/early childhood education worker activities

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me providing constant supervision

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me allowing children autonomy (to do what they want)

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me immediately intervening in physical confrontations between children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me preventing children from wrestling or roughhousing

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw).

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me analyzing situations and choosing solutions least likely to pose risk to children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
$\{q://QID89/ChoiceTextEntryValue\} has shown approval of me never leaving children unattended

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
We are also interested in what sections people like to read in the newspaper. What people read in the paper might effect their opinions. We also want to see if people are reading the questions carefully. To show that you've read this much, please mark both the classified and none of the above boxes below. That's right, just select these two options only.

Regardless of how frequently you read the newspaper, what would you say are your favorite newspaper sections to read? (please check all that apply)

- National
- Local
- Real Estate
- Comics
- Classified
- Style
- Sports
- Business
- Science and Technology
- Opinion
- None of the above
- All of the above

**Coworker 3 A**

Think about your coworker `$q://QID90/ChoiceTextEntryValue` for the next series of questions.
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID90/ChoiceTextEntryValue$ enjoys being reckless

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID90/ChoiceTextEntryValue$ takes risks

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q:\texttt{QID90/ChoiceTextEntryValue}\}$ seeks danger

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$\{q:\texttt{QID90/ChoiceTextEntryValue}\}$ knows how to get around the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID90/ChoiceTextEntryValue$ is willing to try anything once

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID90/ChoiceTextEntryValue$ seeks adventure

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q:\text{ChoiceTextEntryValue}$ would never make a high risk investment

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q:\text{ChoiceTextEntryValue}$ would never go hang-gliding or bungee-jumping

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID90/ChoiceTextEntryValue$ sticks to the rules
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID90/ChoiceTextEntryValue$ avoids dangerous situations
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 3 B
Indicate how well each item below describes $[QID90/ChoiceTextEntryValue]$'s expected level of approval for the following childcare/early childhood education worker activities.

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds  
Last Click: 0 seconds  
Page Submit: 0 seconds  
Click Count: 0 clicks

$[QID90/ChoiceTextEntryValue]$ would approve of me providing constant supervision

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree

$[QID90/ChoiceTextEntryValue]$ would approve of me allowing children autonomy (to do what they want).

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

\$\{q:/QID90/ChoiceTextEntryValue\} would approve of me immediately intervening in physical confrontations between children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

\$\{q:/QID90/ChoiceTextEntryValue\} would approve of me preventing children from wrestling or roughhousing

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID90/ChoiceTextEntryValue$ would approve of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw)

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID90/ChoiceTextEntryValue$ would approve of me analyzing situations and choosing solutions least likely to pose risk to children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{(\text{QID90}/\text{ChoiceTextEntryValue})\}$ would approve of me never leaving children unattended
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 3 C

Indicate how frequently $\{(\text{QID90}/\text{ChoiceTextEntryValue})\}$ has shown approval to me for the follow childcare/early childhood education worker activities

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID90/ChoiceTextEntryValue) has shown approval of me providing constant supervision

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**These page timer metrics will not be displayed to the recipient.**
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$(q://QID90/ChoiceTextEntryValue) has shown approval of me allowing children autonomy (to do what they want)

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
$\{q://QID90/ChoiceTextEntryValue\} has shown approval of me immediately intervening in physical confrontations between children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID90/ChoiceTextEntryValue\} has shown approval of me preventing children from wrestling or roughhousing

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
$\{q://QID90/ChoiceTextEntryValue\} has shown approval of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw).

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**These page timer metrics will not be displayed to the recipient.**
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID90/ChoiceTextEntryValue\} has shown approval of me analyzing situations and choosing solutions least likely to pose risk to children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
${q://QID90/ChoiceTextEntryValue} has shown approval of me never leaving children unattended

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**Coworker 4 A**

Think about your coworker ${q://QID92/ChoiceTextEntryValue} for the next series of questions.

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$('q://QID92/ChoiceTextEntryValue') enjoys being reckless

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$('q://QID92/ChoiceTextEntryValue') takes risks

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID92/ChoiceTextEntryValue) seeks danger

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID92/ChoiceTextEntryValue) knows how to get around the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
${q://QID92/ChoiceTextEntryValue} is willing to try anything once

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

${q://QID92/ChoiceTextEntryValue} seeks adventure

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID92/ChoiceTextEntryValue) would never make a high risk investment

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID92/ChoiceTextEntryValue) would never go hang-gliding or bungee-jumping

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID92/ChoiceTextEntryValue) sticks to the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID92/ChoiceTextEntryValue) avoids dangerous situations

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

**Coworker 4 B**

Indicate how well each item below describes $(q://QID92/ChoiceTextEntryValue)'s expected level of approval for the following childcare/early childhood education worker activities.
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

${(q://QID92/ChoiceTextEntryValue)} would approve of me providing constant supervision

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

${(q://QID92/ChoiceTextEntryValue)} would approve of me allowing children autonomy (to do what they want).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID92/ChoiceTextEntryValue$ would approve of me immediately intervening in physical confrontations between children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID92/ChoiceTextEntryValue$ would approve of me preventing children from wrestling or roughhousing

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID92/ChoiceTextEntryValue$ would approve of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw)

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID92/ChoiceTextEntryValue$ would approve of me analyzing situations and choosing solutions least likely to pose risk to children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID92/ChoiceTextEntryValue$ would approve of me never leaving children unattended

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 4 C

Indicate how frequently $q://QID92/ChoiceTextEntryValue$ has shown approval to me for the following childcare/early childhood education worker activities

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
${q://QID92/ChoiceTextEntryValue} has shown approval of me providing constant supervision

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

${q://QID92/ChoiceTextEntryValue} has shown approval of me allowing children autonomy (to do what they want)

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
$\text{(q://QID92/ChoiceTextEntryValue)}$ has shown approval of me immediately intervening in physical confrontations between children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\text{(q://QID92/ChoiceTextEntryValue)}$ has shown approval of me preventing children from wrestling or roughhousing

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
${q://QID92/ChoiceTextEntryValue} has shown approval of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw).

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

${q://QID92/ChoiceTextEntryValue} has shown approval of me analyzing situations and choosing solutions least likely to pose risk to children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
${q://QID92/ChoiceTextEntryValue} has shown approval of me never leaving children unattended

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

Coworker 5 A

Think about your coworker ${q://QID93/ChoiceTextEntryValue} for the next series of questions.

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID93/ChoiceTextEntryValue) enjoys being reckless

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID93/ChoiceTextEntryValue) takes risks

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID93/ChoiceTextEntryValue) seeks danger

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID93/ChoiceTextEntryValue) knows how to get around the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID93/ChoiceTextEntryValue) is willing to try anything once

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID93/ChoiceTextEntryValue) seeks adventure

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
would never make a high risk investment

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

would never go hang-gliding or bungee-jumping

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID93/ChoiceTextEntryValue) sticks to the rules

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$(q://QID93/ChoiceTextEntryValue) avoids dangerous situations

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 5 B

Indicate how well each item below describes $(q://QID93/ChoiceTextEntryValue)'s expected level of approval for the following childcare/early childhood education worker activities.
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$\{q://QID93/ChoiceTextEntryValue\}$ would approve of me providing constant supervision

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$\{q://QID93/ChoiceTextEntryValue\}$ would approve of me allowing children autonomy (to do what they want).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID93/ChoiceTextEntryValue$ would approve of me immediately intervening in physical confrontations between children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID93/ChoiceTextEntryValue$ would approve of me preventing children from wrestling or roughhousing

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID93/ChoiceTextEntryValue$ would approve of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw)

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

$q://QID93/ChoiceTextEntryValue$ would approve of me analyzing situations and choosing solutions least likely to pose risk to children

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID93/ChoiceTextEntryValue$ would approve of me never leaving children unattended

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Coworker 5 C

Indicate how frequently $q://QID93/ChoiceTextEntryValue$ has shown approval to me for the following childcare/early childhood education worker activities

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
${q://QID93/ChoiceTextEntryValue} has shown approval of me providing constant supervision

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

${q://QID93/ChoiceTextEntryValue} has shown approval of me allowing children autonomy (to do what they want)

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

${q://QID93/ChoiceTextEntryValue} has shown approval of me immediately intervening in physical confrontations between children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always
These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

$q://QID93/ChoiceTextEntryValue$ has shown approval of me preventing children from wrestling or roughhousing

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

$q://QID93/ChoiceTextEntryValue$ has shown approval of me allowing potential for minor injury to help learning/development (e.g. falling from seesaw).

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
$(q://QID93/ChoiceTextEntryValue) has shown approval of me analyzing situations and choosing solutions least likely to pose risk to children

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

$(q://QID93/ChoiceTextEntryValue) has shown approval of me never leaving children unattended

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

**Block 11**

Now, think about the coworkers you just described, as a group, and indicate how well each item below describes how you feel about the members of your **coworker group**.

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds

Last Click: 0 seconds

Page Submit: 0 seconds

Click Count: 0 clicks
My coworker group thinks like me

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree

My coworker group shares my values

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Somewhat Disagree
- [ ] Neither Agree nor Disagree
- [ ] Somewhat Agree
- [ ] Agree
- [ ] Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
My coworker group is like me

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

My coworker group treats others like I do

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
My coworker group is similar to me

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

My coworker group behaves like me

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
My coworker group has thoughts and ideas that are similar to mine

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

My coworker group has a lot in common with me

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
People are very busy these days and many do not have time to follow what goes on in the government. Some do pay attention to politics but do not read questions carefully. To show that you've read this much, please ignore the question below and select the letter k into the blank below. That's right, select the letter k and ignore the other choices.

How interested are you in information about what's going on in government and politics?

- Extremely interested
- Very interested
- Moderately interested
- Slightly interested
- Not interested at all
- k

**Block 12**

This last set of questions asks you to indicate how likely it is that you would engage in the following behaviors, in your role as childcare/early childhood education worker.

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
How likely is it that you would provide constant supervision?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

How likely is it that you would allow children autonomy (to do what they want)?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

These page timer metrics will not be displayed to the recipient.

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
How likely is it that you would immediately intervene in physical confrontations between children?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

How likely is it that you would prevent children from wrestling or roughhousing?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

**These page timer metrics will not be displayed to the recipient.**

First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
How likely is it that you would allow potential for minor injury to help learning/development (e.g. falling from seesaw)?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

How likely is it that you would analyze situations and choose those least likely to pose risk to children?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks
How likely is it that you would never leave children unattended?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

Thank you for taking part in our study

Your validation code for mTurk is $\{e://Field/mTurkCode\}$
June 29, 2015

Oliver K. Stoutner
Department of Management & Marketing
College of Commerce & Business Administration
The University of Alabama
Box 870225

Re: IRB # 13-OR-162-R2 “Playing it Safe: Individual Differences in Attitudes toward Risk and Workplace Injuries”

Dear Mr. Stoutner:

The University of Alabama Institutional Review Board has granted approval for your renewal application.

Your renewal application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research as individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on June 28, 2016. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Study Closure Form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

Carrie M. Meyers, MSM, CIM, CIP
Director of Research Compliance & Research Compliance Officer
Office of Research Compliance
I. Identifying information

Principal Investigator
Names: Oliver K. Stoutner
Department: Management & Marketing
College: Commerce & Business Administration
University: University of Alabama
Address: Box 870225 Tuscaloosa, AL 35487
Telephone: 205-722-8777
FAX: __________________________
E-mail: ostoutner@crimson.ua.edu

Second Investigator
(Faculty Advisor)
Names: Dr. Daniel S. Bachrach
Department: Management & Marketing
College: Commerce & Business Administration
University: University of Alabama
Address: Box 870225 Tuscaloosa, AL 35487
Telephone: 205-348-8487
FAX: __________________________
E-mail: dsachrach@cba.ua.edu

Third Investigator
Names: Wayne Stanley Crawford
Department: Management & Marketing
College: Commerce & Business Administration
University: University of Alabama
Address: Box 870225 Tuscaloosa, AL 35487
Telephone: 205-348-6966
FAX: __________________________
E-mail: wscrawford@crimson.ua.edu

Title of Research Project: Playing it Safe: Individual Differences in Attitudes Toward Risk and Workplace Injuries

Date: 06.17.2015
Submitted: None
Funding: Source: N/A

Type of Proposal: □ New  □ Revision  □ Renewal  □ Completed  □ Exempt

Please attach a renewal application

Please attach a continuing review of studies form

Please enter the original IRB # at the top of the page

UA faculty or staff member signature: __________________________

IRB Project #: 130R-162-R2
II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: ______ Full board ______ Expedited

IRB Action:

___ Rejected Date: ________
___ Tabled Pending Revisions Date: ________
___ Approved Pending Revisions Date: ________

Approved this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date: 6/28/16

Items approved:  
- Research protocol (dated ________)
- Informed consent (dated ________)
- Recruitment materials (dated ________)
- Other (dated ________)

Approval signature __________________________ Date 6/29/2016
June 29, 2015

Oliver K. Stoutner
Department of Management & Marketing
College of Commerce & Business Administration
The University of Alabama
Box 870225

Re: IRB # 13-OR-194-R2 "Risk-Related Role Expectations"

Dear Mr. Stoutner:

The University of Alabama Institutional Review Board has granted approval for your renewal application.

Your renewal application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on June 28, 2016. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Study Closure Form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

Carpanita T. Myles, MSM, CHL, CIP
Director of Research Compliance & Research Compliance Officer
Office of Research Compliance
UNIVERSITY OF ALABAMA
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying Information

Principal Investigator:
Names: Oliver K. Stoutner
Department: Management & Marketing
College: Commerce & Business Administration
University: University of Alabama
Address: Box 870225
Tuscaloosa, AL 35487
Telephone: 205-722-8777
Fax:
E-mail: osoutner@crimson.ua.edu

Second Investigator:
Names: Dr. Daniel G. Bachrach
Department: Management & Marketing
College: Commerce & Business Administration
University: University of Alabama
Address: Box 870225
Tuscaloosa, AL 35487
Telephone: 203-348-8947
Fax:
E-mail: dbachrach@cba.ua.edu

Third Investigator:
Names: Wayne S. Crawford
Department: Management & Marketing
College: Commerce & Business Administration
University: University of Alabama
Address: Box 870225
Tuscaloosa, AL 35487
Telephone: 205-348-6696
Fax:
E-mail: wscrawford@crimson.ua.edu

Title of Research Project: Risk-related role expectations

Date Submitted: 06.17.2015
Funding Source: None
N/A

Type of Proposal
□ New
□ Revision
□ Renewal
□ Completed
□ Exempt
Please attach a renewal application
Please enter the original IRB # at the top of the page

UA faculty or staff member signature:

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: Full Board
IRB Action: Expedited

IRB Action:
Approved - this proposal complies with University and federal regulations for the protection of human subjects.

Items approved:
- Research protocol (dated 6/26/16)
- Informed consent (dated 6/26/16)
- Recruitment materials (dated 6/26/16)

Approval signature: [Signature]
Date: 6/20/2015

214