Fall 2022

The Influence of Psychological Safety on Leadership Attitudes and Beliefs in College Students

Ján Koperniech

Missouri State University, Koperniech32@MissouriState.edu

As with any intellectual project, the content and views expressed in this thesis may be considered objectionable by some readers. However, this student-scholar's work has been judged to have academic value by the student's thesis committee members trained in the discipline. The content and views expressed in this thesis are those of the student-scholar and are not endorsed by Missouri State University, its Graduate College, or its employees.

Follow this and additional works at: https://bearworks.missouristate.edu/theses

🟠 Part of the Industrial and Organizational Psychology Commons

THE INFLUENCE OF PSYCHOLOGICAL SAFETY ON LEADERSHIP ATTITUDES

AND BELIEFS IN COLLEGE STUDENTS

A Master's Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Industrial-Organizational Psychology

By

Ján Koperniech

December 2022

THE INFLUENCE OF PSYCHOLOGICAL SAFETY ON LEADERSHIP ATTITUDES

AND BELIEFS IN COLLEGE STUDENTS

Psychology

Missouri State University, December 2022

Master of Science

Ján Koperniech

ABSTRACT

The goal of the present study is to examine whether there is a link between experiences of psychological safety and certain beliefs and attitudes college students have about organizational leadership. While the locus of most of the research on psychological safety is the workplace, this study examines the effects of psychological safety in three environments: home, school, and work. One-hundred and ninety-nine psychology students reported their experiences and attitudes by completing an online survey. The results showed no significant relationship between psychological safety and systemic and hierarchical beliefs about leadership. The findings, as well as recommendations for future research, are discussed.

KEYWORDS: psychological safety, ecological theory of leadership, leadership attitudes and beliefs, hierarchical thinking, systemic thinking

THE INFLUENCE OF PSYCHOLOGICAL SAFETY ON LEADERSHIP ATTITUDES

AND BELIEFS IN COLLEGE STUDENTS

By

Ján Koperniech

A Master's Thesis
Submitted to the Graduate College
Of Missouri State University
In Partial Fulfillment of the Requirements
For the Degree of Master of Science, Industrial-Organizational Psychology

December 2022

Approved:

Thomas D. Kane, Ph.D., Thesis Committee Chair

Jeffrey L. Foster, Ph.D., Committee Member

David M. Zimmerman, Ph.D., Committee Member

Julie Masterson, Ph.D., Dean of the Graduate College

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

A vast amount of research on psychological safety has been conducted in organizations over the last three decades, with much of that research occurring in the context of organizational leadership (Edmondson & Lei, 2014); outlining the positive effects of psychologically safe environments on job performance, work creativity, employee engagement, and other desirable outcomes (Newman, Donohue, & Eva, 2017). Leadership has been shown crucial for the emergence, fostering, and maintenance of psychological safety (Edmondson, 1999; May, Gilson, & Harter, 2004). As well, several studies identified leadership styles and behaviors related to psychological safety (Carmeli, Reiter-Palmon, & Ziv, 2010; Detert & Burris, 2007; Nemanich & Vera, 2009; Nembhard & Edmondson, 2006); though, few have examined how experienced psychological safety affects the leader him or herself. A question addressed in the present research is, "How does psychological safety contribute to beliefs and attitudes that people possess about leadership?" The answer to this question may not only add to our understanding of the effects of psychological safety but also provide clues that highlight the importance of psychological safety in human and leadership development.

LITERATURE REVIEW

Psychological Safety

Definition. The first conceptualization of psychological safety came in Schein and Bennis's (1965) seminal work on organizational change. In their view, psychological safety is required to promote a desire to learn and to reduce anxiety associated with novelty. It is distinct from "playing-it-safe" attitudes because it encourages experimentation, inquiry, creativity, and provisional tries. A psychologically safe climate "tolerates failure without retaliation, renunciation, or guilt" (p. 45).

Psychological safety has been examined as an individual and group level phenomenon. Kahn (1990), taking an individual-level approach, defined psychological safety in occupational settings as "feeling able to show and employ one's self without fear of negative consequences to self-image, status or career" (p. 708). He proposed safety as one of three psychological conditions that motivate people's engagement or disengagement in organizational settings. The first condition is meaningfulness (i.e., the perception of how useful or important the activity is), the second is safety (i.e., what risks the activity poses), and the third is availability (i.e., what resources are required to engage in the activity). Psychological safety, in Kahn's view, implies trust and support in interpersonal relationships. In trusting and supportive relationships, individuals perceive having space for making mistakes and trying things without fearing failure or negative consequences.

Edmondson (1999) built on Kahn's (1990) views but opted for a group-level conceptualization of psychological safety. She proposed the concept of team psychological safety and defined it as "a shared belief that the team is safe for interpersonal risk-taking" (p.

354). Edmondson noted that, in work teams, psychological safety emerges from group-level conditions that impact all individuals within that team. That is, psychological safety includes expressions of appreciation and interest emerging from the disclosure of one's own and others' shortcomings. Respect is another companion characteristic of psychologically safe relationships. According to Edmondson, mutual respect provides the belief that others will not hold my errors against me, which promotes individuals' willingness to speak up and discuss flaws and concerns about performance. Self-disclosure comes with interpersonal risks, and to take that risk willingly in a group, the group members need to share the belief that it is safe to do so.

It is important to note that group and individual-level approaches to psychological safety do not contradict but rather complement each other (Frazier, Fainshmidt, Klinger, Pezeshkan, & Vracheva, 2017). As Edmondson and Lei (2014) observed, most of the research on psychological safety operated with the assumption that psychological safety produces similar outcomes regardless of the level of analysis. Prompted by this observation, Frazier et al. (2017) conducted a meta-analysis in which they empirically tested the assumption of cross-level homology. They found a high Spearman rank-order correlation between the distribution of ratings ($r_s = .86$) and no significant difference in effect sizes across individual and group-level analyses. This convergence of findings across levels suggests that regardless of the level of analyses, psychological safety facilitates the contribution of ideas and actions in pursuit of group goals (Edmondson & Lei, 2014).

Salient Environments. The present study does not examine conditions that support the emergence of psychological safety. However, I take a developmental approach by investigating which environments provide salient experiences of psychological safety that influence attitudes individuals possess about effective ways to lead and influence others. From a developmental

perspective, individuals may have psychologically safe experiences that shape the way that they relate to others in situations where power differences exist. For the student sample studied in the current research, psychologically safe or unsafe environments might be perceived in students' homelife, school, or work. This is a novel approach to studying the effects of psychological safety since almost all of the research on psychological safety concerns workplace relations and organizational dynamics outside of the human development perspective (Wanless, 2016).

Outcomes. Outcomes of psychological safety are of greater relevance than its antecedents in the context of this study. My research focus for this paper is to determine what kind of attitudes and beliefs about leadership emerge from the experience of psychological safety. Prior research has uncovered multiple outcomes of psychological safety that are relevant to leadership behavior and attitudes. These are discussed below.

Communication. Improved communication stands out as the first and most pertinent product of psychological safety. Leroy, Dierynck, Anseel, Simons, Halbesleben, McCaughey, Savage, and Sels (2012) found that psychological safety increased reports of errors in nurse teams. Similarly, Tynan (2005) observed that psychological safety resulted in a higher tendency to give candid feedback and point out errors to leaders. In combination with value congruence, psychological safety was shown to lead to increased interpersonal communication (Peltokorpi, 2003). Several studies also demonstrated an increase in knowledge sharing in a variety of settings as a result of perceived psychological safety (Siemsen, Roth, Balasubramanian, & Anand, 2009; Xu & Yang, 2010; Zhang, Fang, Wei, & Chen, 2010). Lastly, psychological safety was shown to promote more voice behavior (constructive criticism) in teams and organizations (Bienefeld & Grote, 2014; Brinsfield, 2013; Detert & Burris, 2007; Liang, Farh, & Farh, 2012; Tynan, 2005).

Learning Behaviors. Learning behavior is another outcome of psychological safety pertinent to systemic attitudes and beliefs about leadership. Liu, Hu, Li, Wang, and Lin (2014) demonstrated that psychological safety mediated the relationship between shared leadership and individual and team learning. In their study of inter-organizational teams, Bstieler and Hemmert (2010) showed that both shared problem solving and psychological safety strongly correlated with learning. Psychological safety has positive effects on team learning even in virtual teams (Ortega, Sanchez-Manzanares, Gil, & Rico, 2010; Zhang et al., 2010). Van den Bossche, Gijselaers, Segers, and Kirschner (2006) pointed out that individuals engage in collaborative learning only if certain necessary facets of interpersonal context are present, one of them being psychological safety.

Creativity and Innovation. Researchers have found a positive link between psychological safety and creativity in several studies. Carmeli et al. (2010) demonstrated how psychological safety mediated the positive relationship between inclusive leadership and involvement in creative tasks. Palanski and Vogelgesang (2011) tested a similar model; in their study leader integrity resulted in employees' perception of psychological safety, which in turn promoted creative thinking and risk-taking. Team innovation has also been shown to result from perceptions of psychological safety (Gu, Wang, & Wang, 2013; Post, 2012).

With regards to long-term outcomes of psychological safety, research thus far has addressed effects that pertain only to organizational performance (Higgins, Dobrow, Weiner, & Liu, 2020), while the effects on human development have not been empirically examined (Wanless, 2016). However, there are examples of subordinate leaders adopting their superiors' transformational leadership behaviors (e.g., Bowers & Seashore, 1966; Ouchi & Maguire, 1975; Bass, Waldman, Avolio, & Bebb, 1987; Yammarino, 1994; Kent & Chelladurai, 2001). In the

same fashion, if there is a positive association between psychological safety and systemic leadership styles, there is reason to believe that experiencing psychologically safe environments may promote these kinds of leadership attitudes in individuals.

The Ecological Model of Leadership

The authors of the ecological theory of leadership aspired to provide an alternative to what Rost (1997) called the "industrial paradigm"—a view of leadership centered around the activities of an individual, the great man or woman in charge of a machine-like organization. This view dominated leadership studies of the 20th century. Wielkiewicz and Stelzner (2005) argued that too much emphasis on this view in practice and research is not healthy because it stems out of inherent evolutionary fallacies that associate effective leadership with characteristics of an expert prehistoric hunter and gatherer. Modern organizations face challenges that require more evolved cognitive ability and cooperative behavior (Allen, Stelzner, & Wielkiewicz, 1998; Wielkiewicz & Stelzner, 2005). These challenges, such as limits of natural resources, social changes, increasing volume of information, and globalization, are inherently complex and require a complex approach to leadership (Wielkiewicz, 2000).

The ecological view of leadership builds on Rost's (1997) paradigm of relationship. According to this paradigm, leadership is "an influence relationship among leaders and collaborators who intend real changes that reflect their mutual purposes" (Rost, 1997, p. 11). Thus, the ecological perspective emphasizes not only the leader's unidirectional influence on the followers but also their mutual collaborative relationships. It focuses on "the style and substance of interactions throughout the organization instead of the personality and actions of positional leaders alone" (Wielkiewicz & Stelzner, 2005, p. 336).

Allen et al. (1998) highlighted four principles of the ecological view of leadership. Below, these four principles are described and then discussed in relation to correlates and outcomes of psychological safety.

Interdependence. Interdependence asserts that leadership does not exist in isolation without interactions with others within and outside of the organization. Leadership emerges from relationships and environmental factors that influence the direction and workings of the organization. Leadership cannot be defined simply as the actions of a positional leader. Rather, it is a process in which actions of a positional leader are a part. This description of leadership explains how changes in one part of the system trigger a ripple effect of changes that permeate throughout the entire system (Allen et al., 1998).

Edmondson (1999) identified interdependence as a team design characteristic that helps promote a shared perception of psychological safety. This finding was consistent with Hackman and Oldham's (1976) job characteristic theory, according to which work design characteristics significantly affect employees' psychological states. Edmondson's concept of interdependence refers to team members relying on each other to complete their tasks, which is similar to the principle of interdependence in the ecological theory of leadership. A key difference is that the ecological view diminishes the role of positional leaders and eliminates hierarchical barriers between them and their subordinates. This approach relies on participatory structures that enable decisions to emerge from the genuine involvement of both positional leaders and their subordinates in the leadership process (Wielkiewicz & Stelzner, 2005). Interdependence in the context of ecological leadership is thus defined as positional leaders' reliance on their subordinates' active input. I argue that such work design characteristics must facilitate equal if

not stronger perceptions of psychological safety than mere interdependence among coworkers who collaborate on a shared task.

  Open Systems and Feedback Loops. An ecological approach to leadership posits an unobstructed web of communication channels that allow many possible feedback loops. The open systems view recognizes the constant dependence on input from all relevant sources within and outside of the organization to help the organization cope with all adaptive challenges (Allen et al., 1998). Too much centralization in decision-making, lack of vertical communication, and obstructions due to formalization of procedures suppress innovation, which leads many companies into decline (Barker & Mone, 1998). Countering maladaptation requires a shift away from overdependence on hierarchical structures to systems that encourage broad contributions to leadership in an empowering fashion (Wielkiewicz & Stelzner, 2005).

  An empowering organizational system that invites feedback from all relevant sources implies several, if not all positive communication outcomes identified in research on psychological safety. Open systems in the ecological view of leadership require knowledge and information sharing, which correlated strongly with psychological safety across multiple studies (Frazier et al., 2017; Siemsen et al., 2009; Xu & Yang, 2010; Zhang et al., 2010). An organization that welcomes feedback would support employee voice behavior, which is defined as the expression of a constructive challenge aimed at improvement rather than criticism (Van Dyne & LePine, 1998). As stated earlier, numerous studies have shown that psychological safety helps increase voice behavior (Bienefeld & Grote, 2014; Detert & Burris, 2007; Liang et al., 2012; Tynan, 2005) and decrease silence behaviors (Brinsfield, 2013). Additionally, Wilkens and London (2006) found that perceptions of psychological safety in hospital groups resulted in

increased feedback giving and seeking. Research on psychological safety provides ample evidence for its positive relationship with systemic communication behaviors in organizations.

Cycling of Resources. Another crucial activity of an adaptive organization is the active use of its talent pool and diversity within human resources. To face adaptive challenges effectively, a variety of perspectives is required. Organizations have to take advantage of diversity in all of its forms, which implies a need for inclusiveness. Similarly, in terms of physical resources, organizations need to find solutions that make effective use of all materials while minimizing waste. Without this, organizations put themselves and the environment at risk. In short, according to the ecological theory of leadership, "both human and physical resources need to be cycled and recycled" (Allen et al., 1998, p. 67).

A correlation between the cycling of human resources and psychological safety is perhaps most readily apparent in Roussin and Webber's (2012) study on initial perceptions of coworker trustworthiness. They found that increased levels of psychological safety resulted in greater trust in new coworkers. According to Mayer, Davis, and Schoorman (1995), trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (p. 712). I reason that trust is a prerequisite for an inclusive utilization of human resources. It provides a counterbalance to prejudices that may arise in a diverse work environment (Tajfel & Turner, 1979).

In the same context, inclusive leadership is another relevant construct within the literature on psychological safety. Carmeli et al. (2010) operationalized inclusive leadership as subordinates' perception of their leader's openness, availability, and accessibility. Their study found that employees felt psychologically safe to speak up and offer novel solutions when their

leaders were inclusive. Like trust, inclusive leadership seems necessary to ensure the effective utilization of a variety of perspectives and talents.

Adaptation. When facing adaptive challenges, organizations do not evolve passively by applying the same approach to solving problems. Technological developments, changing economies and social structures require continuous learning. To function optimally, organizations must put in place processes and structures that enable individuals to acquire relevant knowledge and develop preparedness and crucial competencies. Without these structures, adaptation becomes difficult. The goal is to increase awareness of the processes within the larger system and subsequently become capable of proactively anticipating and influencing its development (Allen et al., 1998).

Learning is the most evident factor of adaptation, and it occupies a prominent role in the literature on psychological safety. The positive link between psychological safety and learning behaviors has been found in a variety of settings and across levels of analysis (Bstieler & Hemmert, 2010; Edmondson, 1999; Liu et al., 2014; Ortega et al., 2010; Van den Bossche et al., 2006; Zhang et al., 2010). Moreover, Tucker, Nembhard, and Edmondson (2007) found a positive relationship between psychological safety and the successful implementation of new knowledge and practices in healthcare professionals. Psychological safety also eased the process of new technology implementation in cardiac surgery departments (Edmondson, Bohmer, & Pisano, 2001). Innovation and creativity are other critical factors in successful adaptation, both of which have been linked to psychological safety (Carmeli et al., 2010; Gu et al., 2013; Palanski & Vogelgesang, 2011; Post, 2012). Given the empirical evidence, I argue that psychological safety should be linked to the principle of adaptation as described in the ecological theory of leadership.

Systemic versus Hierarchical Leadership Attitudes and Beliefs

To assess a preference for ecological leadership style in students, Wielkiewicz (2000) evaluated attitudes and beliefs rather than behaviors, as the latter would not be appropriate for students who lack of leadership experience. His measure, the *Leadership Attitudes and Beliefs Scale* (LABS-III), assesses beliefs and attitudes that individuals hold regarding leadership in a manner that reflects the ecological theory of leadership (systemic thinking) as well as attitudes and beliefs about leadership as a concentration of power and control within the hands of a single leader who delegates authority through a stable hierarchical structure (hierarchical thinking).

Fischer, Overland, and Adams (2010) administered the LABS-III to incoming freshmen to find if there is a preference for either leadership attitude within specific demographic groups. They found no significant difference between men and women in systemic leadership scores, but men scored significantly higher on hierarchical attitudes and beliefs. Students of color scored significantly lower on both systemic and hierarchical leadership attitudes when compared to white and international students.

Wielkiewicz, Prom, and Loos (2005) correlated the LABS-III with student study habits, learning attitudes, and GPA and found that systemic attitudes and beliefs positively correlated with life-long learning and social activism. While no correlation was found with GPA, low scores on the hierarchical scale predicted higher GPA. Wielkiewicz and colleagues speculated whether students with a systemic style of thinking about leadership tended to be more confident in their leadership abilities. Their observations suggested that self-efficacy could be a possible mediator between engagement in development activities and the formation of systemic leadership attitudes.

Study Hypotheses

Following these observations about hierarchical and systemic thinking, and given the

proposed logical links to psychological safety, I formulated the following hypotheses:

H1: Psychological safety will positively correlate with systemic thinking.
H2: Psychological safety will correlate negatively with hierarchical thinking.

METHODS

One hundred and ninety-nine psychology students at a central United States university participated in the study for college credit. They completed an online survey that comprised a leadership challenge (see Appendix A-1), three versions of Edmondson's (1999) *Team Psychological Safety Scale* (see Appendix B), and a modified version of the *Leadership Attitudes and Beliefs Scale* (LABS-III, see Appendix C) designed by Wielkiewicz (2000).

Participants

The sample comprised 64 men, 133 women, and two non-binary (three participants did not disclose their gender); 163 were White, seven African-American, 10 identified as Latino(a), two were Native American, 10 were Asian, and 11 identified as people of two or more races. The majority of the participants were freshmen in college (around 71%) and the 18-20 age group (approximately 90%). With regards to experienced psychological safety at home, I included an item to indicate what type of household they grew up in and to choose one or more of the following: (1) two-parent household, (2) single-parent household, (3) adopted, (4) foster care, and (5) other – please specify.

Measures

Systemic and Hierarchical Thinking. To evaluate students' leadership attitudes and beliefs, students completed a leadership exercise. The purpose of the leadership challenge was to provide grounds for a qualitative evaluation of participants' leadership attitudes and beliefs in addition to the LABS-III. The challenge consisted of a brief vignette and three open-ended

questions (see Appendix A-1) that prompted the participants to solve the challenge as if they were the leader in the situation. The questions were worded in a neutral fashion; meaning, they were not supposed to lead the participants to responses that demonstrate exclusively either hierarchical or systemic style of thinking. To evaluate the responses, I created a list of 10 categories: five for hierarchical and five for systemic attitudes and beliefs based on the ecological theory of leadership (Allen et al., 1998; Wielkiewicz & Stelzner, 2005). The categories of leadership attitudes and beliefs are listed in Table 1. Three independent evaluators then rated the participants' comments on the following: (1) total number of categories represented, and (2) total number of independent ideas listed in responses to all three questions. A formula and a grading rubric were then designed to transform the number of categories represented into a uniform scale (1 – 11; 1 = five hierarchical and zero systemic categories; 6 = an equal number of categories; 11 = five systemic and zero hierarchical categories represented; see Appendix A-2 and Appendix A-3).

Psychological Safety. Students reported perceived psychological safety by completing Edmondson's (1999) 7-item Team Psychological Safety Scale (Cronbach's alpha = .82, see Appendix B-1). Responses to the items range from 1 = Strongly Disagree to 7 = Strongly Disagree. Safety was evaluated in three environments, so the scale was modified to be relevant to the settings of 1) work, 2) college, and 3) family. Originally, the scale was designed to assess perceptions of psychological safety in a work environment, so I modified the wording in all items in the assessment of psychological safety at home (Appendix B-2) and at school (Appendix B-3). For example, an item on the work psychological safety scale – "It is safe to take a risk on this team" – was changed to "It is safe to take a risk in my family" for the home environment and to "It is safe to take a risk as a student in this school" for the school environment.

Table 1. Categories of Leadership Attitudes and Beliefs

	Category	Description
Hierarchical Thinking Styles	Sole Decision Making	Demonstrates concentration of decision-making responsibility in one person's (the leader's) hands.
	No Internal Input	Does not seek feedback from colleagues, team members, or other workers.
	No External Input	Does not seek feedback or advice from customers, the community, or other relevant external entities.
	Rigidity	Demonstrates unwillingness to adopt, to make structural/organizational changes to face the challenge.
	Short-term Preference	Prefers focusing on short-term profits over long-term outcomes.
Systemic Thinking Styles	Training and Development Considerations	Proposes elements of training and learning to adopt to changes.
	Team Considerations	Seeks input from team members, employees, other leaders and actors within the company.
	Outside Considerations	Considers variables from a larger context; i.e., the community, national and industry development, etc.
	Flexibility	Demonstrates willingngess to make structural/organizational changes to face the challenge.
	Long-term Considerations	Focuses on long-term outcomes.

Leadership Attitudes and Beliefs. After the psychological safety scales, the participants

proceeded to answer questions on the Leadership Attitudes and Beliefs Scale (LABS-III, see

Appendix C). It consists of two subscales, Hierarchical Thinking and Systemic Thinking, each

containing 14 items. Their respective alpha coefficients are .88 and .84 (Wielkiewicz, 2000).

Responses ranged from 1 = Strongly Disagree to 7 = Strongly Agree.

Procedure

The methods of this study were approved by the Missouri State University Institutional

Review Board (IRB) for the use of human subjects on May 10, 2021 (IRB-FY2021-400, see

Appendix D). Participants were recruited through the Missouri State University Psychology

Department Research Participation System (SONA) and rewarded course credit for their

participation.

The entire data collection process was completed via a Qualtrics survey. At the beginning

of the survey, participants consented to the conditions of research participation (see Appendix

E), and then they proceeded to answer questions about their past and present work/leadership

experiences. After that, each participant was asked to carefully read the leadership challenge

vignette and answer three open-ended questions (see Appendix A). Students then proceeded to

rate their experiences of psychological safety in three different environments—work, home, and

school (see Appendix B). For students, who indicated that they had had no prior work

experience, the survey skipped questions about Team Psychological Safety (work environment).

Following the psychological safety scales, participants answered questions on the LABS-III (see

Appendix C). At the end of the survey, participants were asked demographic questions and

debriefed (see Appendix F).

RESULTS

All statistical analyses were conducted using SPSS, version 26. Table 2 presents the means, standard deviations, and correlations between the variables in this study.

Table 2. Descriptive Statistics and Zero-order Correlations between Study Variables

Variable	Mean	SD	1	2	3	4	5	6	7
1. Work Psychological Safety	5.00	.92	(.68)						
2. Family Psychological Safety	4.99	1.30	.17*	(.84)					
3. School Psychological Safety	4.30	1.00	.29**	.13	(.71)				
4. Total Psychological Safety	4.75	.75	.66**	.73**	.65**	(.79)			
5. Systemic Thinking	4.78	.46	-.05	-.03	-.02	-.04	(.52)		
6. Hierarchical Thinking	4.73	.68	.07	.12	-.07	.05	.23**	(.53)	
7. Leadership Challenge Rating	6.25	1.42	.03	-.00	.04	.03	.20**	-.08	(.71)

Note. Numbers in parentheses are Cronbach's alpha coefficients.
 * $p < .05$
** $p < .01$

As indicated, the data supported neither Hypothesis 1 ($r = -.04$, $p > .05$) nor Hypothesis 2 ($r = .05$, $p > .05$), meaning no significant relationship was found between total psychological safety scores and either style of thinking about leadership. Qualitative evaluation of participants' responses to the leadership challenge showed a similar trend ($r = .00$ to .04)—the ratings were not significantly correlated with any of the measures of psychological safety.

DISCUSSION

Psychological safety and systemic attitudes and beliefs about leadership appear to share certain conceptual commonalities, such as a necessity of interdependence, openness to feedback and inclusion, learning, and adaptation. Based on these commonalities I designed this study to test the hypotheses that experiences of psychological safety correlate positively with systemic thoughts about leadership and negatively with hierarchical thoughts about leadership.

The results did not support the predicted relationships of psychological safety with hierarchical and systemic attitudes about leadership. The characteristics of hierarchical thinking, namely concentration of decision-making power, tight control of the organization, and emphasis on positional authority, seem to contradict the attitudes towards learning, innovation, inclusion, and openness to feedback. These attitudes, as emphasized in the literature review, reflect outcomes of psychological safety, hence the prediction.

However, the empirical evidence presented in this study does not support either prediction. In the following section, I will discuss possible reasons for this discrepancy.

The first possible reason could be that my assumptions based on theory were is simply not correct. In formulating hypotheses, I assumed that attitudes, once formed, can carry over across domains and influence individuals' beliefs about leadership in a general sense, regardless of the environment. One study suggests this to be true in the case of leadership behaviors in much older adults (Park, Arvey, & Tong, 2011). However, it remains a question whether the younger and relatively inexperienced individuals, who participated in this study, formed relatively permanent beliefs and attitudes about leadership across settings. Results of this current

study suggest that beliefs about leadership are independent of experienced psychological safety across three domains of their lives.

Other potential issues related to the lack of support for study hypotheses could be related to the methodology. This study employed a student sample to investigate how leadership attitudes and beliefs are formed before they fully enter the workforce. However, inherent challenges are associated with using this sample to explore leadership attitudes. For instance, many students have little professional and organizational experience. This is evidenced not only by the participants' reports of their prior leadership experience but also by the low internal consistency in responses to LABS-III. Granted, when designing the scale, Wielkiewicz (2000) used a large undergraduate sample that included students from all four grades, providing information only about their on-campus leadership involvement. However, many differences between the original sample and my student sample should be expected mainly because this current study was conducted more than twenty years after Wielkiewicz published LABS-III. During the last two decades, many events, cultural and societal changes have taken place that might influence how young adults view and understand leadership. Other questions that arise from the use of a student sample include whether they have had adequate time to observe and integrate leadership perspectives into their schema about leadership, whether they had enough direct leadership experience, whether students' workplace experiences are viewed less seriously than workers established in careers, and whether they have had sufficient feedback to stabilize beliefs about leadership.

A methodological issue bearing on study results could revolve around the measurements used in this study. While LABS-III was originally designed with a student sample, the Team Psychological Safety Scale was designed to assess shared perceptions of a psychologically safe

environment within a work team (Edmondson, 1999). Despite evidence of scale validity, (Newman et al., 2017), the Work Psychological Safety measure had low internal consistency in this current study (alpha = .68). On the other hand, the modified measures of Family and School Psychological Safety had stronger alpha levels (.84 and .71 respectively). Scale reliabilities may be further evidence for the sample's general lack of experience, or meaningful and impactful experience in the work domain. In all, these methodolofical issues reaise the question about whether the measures were appropriate for the student sample.

Perhaps the greatest issue inherent in the design of this study is the lack of environmental concordance of the key constructs. Most psychological safety research evaluates safety and study criteria in the same environment. This was not the case in this current study. Students evaluated safety in three salient environments in their lives, but reported a leadership solution in a hypothetical situation that was disconnected from those experiences. Note also that students' perceived safety across three domains was only weakly correlated (i.e., ranging from $r = .13$ to $r = .29$). Psychological safety could be more of a local phenomena and operate within a specific leadership domain. Future research should investigate to what extent psychological safety is linked to context versus integrated into the personality of the target.

Despite the lack of evidence in support of the study hypotheses, two major contributions flow from this study. First, the measures of psychological safety show weak-to-modest correlations across the three domains. This finding implies that a part of perceived psychological safety is inherent to the person rather than the situation. Research on individual-level psychological safety has shown a significant positive relationship between psychological safety and three personality attributes—proactiveness, learning orientation, and emotional stability (Frazier et al., 2017). In addition to being linked to personality factors, which has been

established, this current study offers the possibility that psychological safety might be rooted in family and school experiences. As such, within any context, one's perceived psychological safety may be influenced by both personality factors that formed from past experiences and experiences within a specific context. Future research might examine both the state and trait elements of psychological safety.

Another contribution is related to the student sample of this study. The Team Psychological Safety Scale has been almost exclusively used in studies that investigated work teams and work-related issues. A non-work sample, as demonstrated in this study, may produce a different outcome. The high internal consistency scores for the modified Family Psychological Safety Scale indicate that this construct is perhaps most salient in the home environment for young individuals, who are relatively inexperienced in the workforce or who experience safety, more or less, in the potentially vastly different academic contexts they encounter over their tenure in college.

Future research on the relations between psychological safety and leadership attitudes and beliefs should focus on nesting the two constructs in a single environment. Participants should rate their experiences of psychological safety and express their views about leadership in connection to the environment in which they are most familiar. I also recommend modifications to the LABS-III scale to match the wording of the items closely with the environment in which participants actively operate (e.g., "school" instead of "organizations"). Lastly, concerning psychological safety, researchers should include measures of personality traits in addition to Edmondson's (1999) Team Psychological Safety Scale. This could advance understanding about whether the same individual-level characteristics predict higher scores in psychological safety in students as compared to older, more work-experienced individuals.

REFERENCES

Allen, K. E., Stelzner, S. P., & Wielkiewicz, R. M. (1998). The ecology of leadership: Adapting to the challenges of a changing world. *Journal of Leadership Studies, 5*(2), 62-82. doi:10.1177/107179199900500207

Barker, V. I., III, & Mone, M. A. (1998). The mechanistic structure shift and strategic reorientation in declining firms attempting turnarounds. *Human Relations, 51*(10), 1227-1258. doi:10.1177/001872679805101002

Bass, B. M., Waldman, D. A., Avolio, B. J., & Bebb, M. (1987). Transformational leadership and the falling dominoes effect. *Group & Organization Studies, 12*(1), 73-87. doi:10.1177/105960118701200106

Bienefeld, N., & Grote, G. (2014). Speaking up in ad hoc multiteam systems: Individual level effects of psychological safety, status, and leadership within and across teams. *European Journal of Work and Organizational Psychology, 23*(6), 930-945. doi:10.1080/1359432X.2013.808398

Bowers, D. G., & Seashore, S. E. (1966). Predicting organizational effectiveness with a four-factor theory of leadership. *Administrative Science Quarterly, 11*(2), 238-263. doi:10.2307/2391247

Brinsfield, C. T. (2013). Employee silence motives: Investigation of dimensionality and development of measures. *Journal of Organizational Behavior, 34*(5), 671-697. doi:10.1002/job.1829

Bstieler, L., & Hemmert, M. (2010). Increasing learning and time efficiency in interorganizational new product development teams. *Journal of Product Innovation Management, 27*(4), 485-499. doi:10.1111/j.1540-5885.2010.00731.x

Carmeli, A., Reiter-Palmon, R., & Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creativity Research Journal, 22*(3), 250-260. doi:10.1080/10400419.2010.504654

Detert, J. R., & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal, 50*(4), 869-884. doi:10.5465/amj.2007.26279183

Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*(2), 350-383. doi:10.2307/2666999

Edmondson, A. C., Bohmer, R. M., & Pisano, G. P. (2001). Disrupted routines: Team learning and new technology implementation in hospitals. *Administrative Science Quarterly, 46*(4), 685–716. doi:10.2307/3094828

Edmondson, A.C., & Lei, Z. (2014). Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology and Organizational Behavior, 1*(1), 23-43. doi:10.1146/annurev---orgpsych---031413---091305

Frazier, M. L., Fainshmidt, S., Klinger, R. L., Pezeshkan, A., & Vracheva, V. (2017). Psychological safety: A meta-analytic review and extension. *Personnel Psychology, 70*(1), 113-165. doi:10.1111/peps.12183

Fischer, D. V., Overland, M., & Adams, L. (2010). Leadership attitudes and beliefs of incoming first year college students. *Journal of Leadership Education, 9*(1), 1-16. Retrieved from https://digitalcommons.csbsju.edu/cgi/viewcontent.cgi?article=1006&context=esss_pubs

Gu, Q., Wang, G. G., & Wang, L. (2013). Social capital and innovation in R&D teams: The mediating roles of psychological safety and learning from mistakes. *R&D Management, 43*(2), 89-102. doi:10.1111/radm.12002

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*(2), 250-279. doi:10.1016/0030-5073(76)90016-7

Higgins, M. C., Dobrow, S. R., Weiner, J. M., & Liu, H. (2020). When is psychological safety helpful in organizations? A longitudinal study. *Academy of Management Discoveries, 8*(1). doi:10.5465/amd.2018.0242

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*(4), 692-724. doi:10.5465/256287

Kent, A., & Chelladurai, P. (2001). Perceived transformational leadership, organizational commitment, and citizenship behavior: A case study in intercollegiate athletics. *Journal of Sport Management, 15*(2), 135-159. doi:10.1123/jsm/15.2.135

Leroy, H., Dierynck, B., Anseel, F., Simons, T., Halbesleben, J. R. B., McCaughey, D., Savage, G. T., & Sels, L. (2012). Behavioral integrity for safety, priority of safety, psychological safety, and patient safety: A team-level study. *Journal of Applied Psychology, 97*(6), 1273–1281. doi:10.1037/a0030076

Liang, J., Farh, C. I. C., & Farh, J. L. (2012). Psychological antecedents of promotive and prohibitive voice: A two-wave examination. *Academy of Management Journal, 55*(1), 71-92. doi:10.5465/amj.2010.0176

Liu, S., Hu, J., Li, Y., Wang, Z., & Lin, X. (2014). Examining the cross-level relationship between shared leadership and learning in teams: Evidence from China. *The Leadership Quarterly, 25*(2), 282-295. doi:10.1016/j.leaqua.2013.08.006

May, D. R., Gilson, R. L., & Harter, L.M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology, 77*(1), 11-37. doi:10.1348/096317904322915892

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*(3), 709-734. doi:10.5465/amr.1995.9508080335

Nemanich, L. A., & Vera, D. (2009). Transformational leadership and ambidexterity in the context of an acquisition. *The Leadership Quarterly, 20*(1), 19-33. doi:10.1016/j.leaqua.2008.11.002

Nembhard, I. M., & Edmondson, A. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior, 27*(7), 941-966. doi:10.1002/job.413

Newman, A., Donohue, R., & Eva, N. (2017). Psychological safety: A systematic review of the literature. *Human Resource Management Review, 27*(3), 521-535. doi:10.1016/j.hrmr.2017.01.001

Ortega, A., Sanchez-Manzanares, M., Gil, F., & Rico, R. (2010). Team learning and effectiveness in virtual project teams: The role of beliefs about interpersonal context. *Spanish Journal of Psychology, 13*(1), 267-276. doi:10.1017/S113874160000384X

Ouchi, W. G., & Maguire, M. A. (1975). Organizational control: Two functions. *Administrative Science Quarterly, 20*(4), 559-569. doi:10.2307/2392023

Palanski, M. E., & Vogelgesang, G. R. (2011). Virtuous creativity: The effects of leader behavioural integrity on follower creative thinking and risk taking. *Canadian Journal of Administrative Sciences, 28*(3), 259-269. doi:10.1002/cjas.219

Park, K. W., Arvey, R. D., & Tong, Y. K. (2011). The generalizability of leadership across activity domains and time periods. *The Leadership Quarterly, 22*(1), 223-237. doi: 10.1016/j.leaqua.2010.12.017

Peltokorpi, V. (2004). Transactive memory directories in small work units. *Personnel Review, 33*(4), 446-467. doi:10.1108/00483480410539515

Post, C. (2012). Deep-level team composition and innovation: The mediating roles of psychological safety and cooperative learning. *Group & Organization Management, 37*(5), 555-588. doi:10.1177/1059601112456289

Rost, J. C. (1997). Moving from individual to relationship: A postindustrial paradigm of leadership. *Journal of Leadership Studies, 4*(4), 3-16. doi:10.1177/107179199700400402

Roussin, C. J., & Webber, S. S. (2012). Impact of organizational identification and psychological safety on initial perceptions of co-worker trustworthiness. *Journal of Business and Psychology, 27*(3), 317–329. doi:10.1007/s10869-011-9245-2

Schein, E. H., & Bennis, W. (1965). Personal and organizational change through group methods. New York: Wiley.

Siemsen, E., Roth, A. V., Balasubramanian, S., & Anand, G. (2009). The influence of psychological safety and confidence in knowledge on employee knowledge sharing. *Manufacturing and Service Operations Management, 11*(3), 429-447. doi:10.1287/msom.1080.0233

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Pacific Grove, CA: Brooks/Cole.

Tucker, A. L., Nembhard, I. M., & Edmondson, A. C. (2007). Implementing new practices: An empirical study of organizational learning in hospital intensive care units. *Management Science, 53*(6), 894-907. doi:10.1287/mnsc.1060.0692

Tynan, R. (2005). The effects of threat sensitivity and face giving on dyadic psychological safety and upward communication. *Journal of Applied Social Psychology, 35*(2), 223-247. doi:10.1111/j.1559-1816.2005.tb02119.x

Van den Bossche, P., Gijselaers,W. H., Segers, M., & Kirschner, P. A. (2006). Social and cognitive factors driving teamwork in collaborative learning environments: Team learning beliefs and behaviors. *Small Group Research, 37*(5), 490–521. doi: 10.1177/1046496406292938

Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal, 41*(1), 108-119. doi:10.5465/256902

Wanless, S. B. (2016). The role of psychological safety in human development. *Research In Human Development, 13*(1), 6-14. doi:10.1080/15427609.2016.1141283

Wielkiewicz, R. M. (2000). The leadership attitudes and beliefs scale: An instrument for evaluating college students' thinking about leadership and organization. *Journal of College Student Development, 41*(3), 335-347.

Wielkiewicz, R. M., Prom, C. L., & Loos, S. (2005). Relationships of the Leadership Attitudes and Beliefs Scale with student types, study habits, life-long learning, and GPA. *College*

Student Journal, 39(1), 31+. Retrieved from
https://link.gale.com/apps/doc/A131318244/AONE?u=anon~bc09ff0d&sid=googleSchol
ar&xid=3deebd8d

Wielkiewicz, R. M., & Stelzner, S. P. (2005). An ecological perspective on leadership theory,
research, and practice. *Review of General Psychology, 9*(4), 326-341. doi:10.1037/1089-
2680.9.4.326

Wilkens, R., & London, M. (2006). Relationships between climate, process, and performance in
continuous quality improvement groups. *Journal of Vocational Behavior, 69*(3), 510-523.
doi:10.1016/j.jvb.2006.05.005

Xu, Y., & Yang, Y. (2010). Student learning in business simulation: An empirical investigation.
Journal of Education for Business, 85(4), 223-228. doi:10.1080/08832320903449469

Yammarino, F. J. (1994). Indirect leadership: Transformational leadership at a distance. In B. M.
Bass & B. J. Avolio (Eds.), *Improving organizational effectiveness through
transformational leadership.* Thousand Oaks, CA: Sage

Zhang, Y. X., Fang, Y. L., Wei, K. K., & Chen, H. P. (2010). Exploring the role of psychological
safety in promoting the intention to continue sharing knowledge in virtual communities.
International Journal of Information Management, 30(5), 425-436.
doi:10.1016/j.ijinfomgt.2010.02.003

Appendix A: Leadership Challenge

In this section, the full text of the Leadership Challenge is provided (A-1), along with the formula used to code the number of categories represented (see A-2) and the grading rubric used by the evaluators (A-3).

Appendix A-1: The Text of the Leadership Challenge

You own a restaurant in a highly diverse suburban area. Your business model revolves around three main themes: 1) promoting healthy lifestyles, 2) protecting the environment, and 3) celebrating cultural diversity. This unique model has attracted talented chefs of various backgrounds and has produced considerable success for your business. No other restaurant in the region is quite like yours. However, unforeseen events caused a financial crisis on a national scale, which threatens you with major profit losses if your company doesn't make substantial budget cuts. Any cuts made could affect one or more of the three main themes of your business model. The top six investments, not related to food purchases, your company makes are:

- rental of two large dining rooms,
- marketing investments – local billboard promotions, newspaper, and internet
- salaries and benefits for three professional chefs and 6 assistants,
- recruitment and training costs aimed at 40+ waiters and waitresses,
- extra expenses dedicated to biodegradable cups, straws, plates, and utensils,
- thematic decoration that changes seasonally.

As you approach making your decisions about the budget cuts, answer the following questions:

1. What additional information do you need to know before making a decision? (List as much as can)
2. Would you believe that modifying your business model themes would be wise in this crisis? Whether you answer yes or no, please provide an explanation.
3. What resources might help you resolve the challenge you are facing? (List as many as you can.)

Appendix A-2: Formula for Coding the Number of Categories Represented

X = |Ss – Hs|

- "An absolute value of the Number of Systemic Styles represented minus the Number of Hierarchical Styles represented."
- X should not exceed 5 or be less than 0; $X \in \{0, 5\}$

Appendix A-3: Grading Rubric for the Number of Categories Represented

Grade	1	2	3	4	5	6
Criterium	Demonstrates 5 (total difference) hierarchical styles of thinking.	Demonstrates 4 (total difference) hierarchical styles of thinking.	Demonstrates 3 (total difference) hierarchical styles of thinking.	Demonstrates 2 (total difference) hierarchical styles of thinking.	Demonstrates 1 (total difference) hierarchical style of thinking.	Demonstrates equal amount of systemic and hierarchical styles.
Math Formula	$X = \|Ss – Hs\|$ $\land Hs > Ss$	$X = \|Ss – Hs\|$ $\land Hs > Ss$	$X = \|Ss – Hs\|$ $\land Hs > Ss$	$X = \|Ss – Hs\|$ $\land Hs > Ss$	$X = \|Ss – Hs\|$ $\land Ss > Hs$	$X = 0$

Appendix A-3 cont.: Grading Rubric for the Number of Categories Represented

Grade	7	8	9	10	11
Criterium	Demonstrates 1 (total difference) systemic style of thinking.	Demonstrates 2 (total difference) systemic styles of thinking.	Demonstrates 3 (total difference) systemic styles of thinking.	Demonstrates 4 (total difference) systemic styles of thinking.	Demonstrates 5 (total difference) systemic styles of thinking.
Math Formula	$X = \|Ss – Hs\| \land$ $Ss > Hs$	$X = \|Ss – Hs\| \land$ $Ss > Hs$	$X = \|Ss – Hs\| \land$ $Ss > Hs$	$X = \|Ss – Hs\| \land$ $Ss > Hs$	$X = \|Ss – Hs\| \land$ $Ss > Hs$

Appendix B: Measures of Psychological Safety

Appendix B-1: Team Psychological Safety Scale

1. If you make a mistake on this team, it is often held against you.
2. Members of this team are able to bring up problems and tough issues.
3. People on this team sometimes reject others for being different.
4. It is safe to take a risk on this team.
5. It is difficult to ask other members of this team for help.
6. No one on this team would deliberately act in a way that undermines my efforts.
7. Working with members of this team, my unique skills and talents are valued and utilized.

Appendix B-2: Family Psychological Safety Scale

1. When I make mistakes, my family holds it against me.
2. Members of my family are able to bring up problems and tough issues.
3. If my family perceives me as too different, I might be rejected.
4. It is safe to take a risk in my family.
5. It is difficult to ask my family members for help.
6. No one in my family would deliberately act in a way that undermines my efforts.
7. My unique skills and talents are valued and appreciated by my family.

Appendix B-3: School Psychological Safety Scale

1. When you make errors in this school, it is often held against you.
2. You and your classmates can bring up controversial and tough issues in this school.
3. In this school, if I am perceived as too different, I might be rejected.
4. It is safe to take risks as a student in this school.
5. It is difficult to ask other people in this school for help.
6. No one in this school would deliberately act in a way that undermines my efforts.
7. Working with others in this school, my unique skills and talents are valued and utilized.

Appendix C: Leadership Attitudes and Beliefs Scale (LABS-III)

1. Individuals need to take initiative to help their organization accomplish its goals.
2. Leadership should encourage innovation.
3. A leader must maintain tight control of the organization.
4. Everyone in an organization needs to be responsible for accomplishing organizational goals.
5. Leadership processes involve the participation of all organization members.
6. A leader must control the group or organization.
7. A leader should maintain complete authority.
8. A leader should take charge of the group.
9. Organizational action should improve life for future generations.
10. The main task of a leader is to make the important decisions for an organization.
11. Leadership activities should foster discussions about the future.
12. Effective leadership seeks out resources needed to adapt to a changing world.
13. The main tasks of a leader are to make and then communicate decisions.
14. An effective organization develops its human resources.
15. It is important that a single leader emerges in a group.
16. Members should be completely loyal to the designated leaders of an organization.
17. The most important members of an organization are its leaders.
18. Anticipating the future is one of the most important roles of leadership processes.
19. Good leadership requires that ethical issues have high priority.
20. Successful organizations make continuous learning their highest priority.
21. Positional leaders deserve credit for the success of an organization.
22. The responsibility for taking risks lies with the leaders of an organization.
23. Environmental preservation should be a core value of every organization.
24. Organizations must be ready to adapt to changes that occur outside the organization.
25. When an organization is in danger of failure, new leaders are needed to fix its problems.
26. An organization needs flexibility in order to adapt to a rapidly changing world.
27. Leaders are responsible for the security of organization members.
28. An organization should try to remain as stable as possible.

Appendix D: Missouri State University IRB Approval

To:
Thomas Kane
Psychology

RE: Notice of IRB Approval
Submission Type: Initial
Study #: IRB-FY2021-400
Study Title: Psychological safety and leadership attitudes
Decision: Approved

Approval Date: May 10, 2021

This submission has been approved by the Missouri State University Institutional Review Board (IRB). You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB.

_____
_____
This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

Researchers Associated with this Project:
PI: Thomas Kane
Co-PI:
Primary Contact: Jan Koperniech
Other Investigators:

Appendix E: Informed Consent – Survey Title Page

Title of Research: Perspectives about leadership
Supervising Professor: Thomas Kane, PhD, Psychology Department, Hill Hall 326, 836-4901
Project co-leader: Ján Koperniech, Graduate Student, Industrial/Organizational Psychology Program
Contact Information: Koperniech32@missouristate.edu or tomkane@missouristate.edu

   This research examines development of leadership attitudes as a consequence of certain past experiences. During the next 35-45 minutes, you will report some background information about yourself, share your attitudes about leadership, and will imagine yourself in a leadership role in order to offer solutions to one short leadership problem. Your participation is voluntary, and we will not ask for you to report your name or other personally identifying information that could be linked to the data you provide.

   By participating in this study, you can learn a little bit about the research process for psychological studies and about your own leadership attitudes and problem-solving capabilities. You will also gain 2 units of course credit through your full participation in the study if you are enrolled in PSY 121 and other possible credit if your instructor has agreed to provide such credit to reward your participation in other classes. You may choose to withdraw from participation at any time without penalty, and you will be rewarded credit based on the amount of time spent as a participant and the completeness of your responses. If you have questions, please contact one of the researchers at any point during this study.

I VERIFY THAT I HAVE READ AND FULLY UNDERSTAND THE STATEMENT OF PROCEDURE AND THAT I MAY TERMINATE MY PARTICPATION IN THIS STUDY AT ANY TIME WITHOUT PENALIZATION. I FURTHER VERIFY THAT I AM AT LEAST EIGHTEEN YEARS OF AGE.

By clicking to advance to the survey questions and leadership problems, I understand that I am providing informed consent for participating in this study. I will receive 2 units of credit for my full participation in this 40-minute study (answering all questions and completing the leadership problems).

   o Continue to the survey

Appendix F: Survey Debriefing

       Before you end the survey, here is some information about the purpose and methods of the study: Our goal is to determine if there is a relationship between prior experience of psychological safety and certain leadership attitudes. To achieve this, we asked you about your experience of psychological safety in three different environments: work, home, and school. If you have any questions about the study, email them to **Koperniech32@missouristate.edu**.

       IMPORTANT: We ask you to NOT share the content of this survey with anyone as it is part of ongoing research. Thank you.