Leading through the Noise. Exploring the impact of irrelevant information on leadership perceptions

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List of Abbreviations

ANOVA	Analysis of Variance
df	Degrees of freedom
e.g.	Exempli Gratia
ILT	Implicit Leadership Theories
i.e.	Id Est
LBDQ	Leadership Behavior Description Questionnaire
M	Mean
MS	Mean Square
OR	Only Relevant
RIR	Relevant and Irrelevant information
SD	Standard Deviation
Sig.	Significance

Introduction

For decades, significant impact of leaders' actions on organizational performance has made leadership an important topic for scholars in the field of organizational behavior and social psychology (Turner & Haslam, 2001). The impact of leaders' behaviors and styles on organization entail ameliorating team performance (Cheung et al., 2018), motivation (Rahbi et al., 2017; Bock et al., 2008), engagement (Hsieh & Wang, 2015) and satisfaction (Skogstad et al., 2015), thereby ultimately leading to improved organizational performance (Wang et al., 2011). Further advancements in this research domain highlighted that the impact of leadership does not only rely on leader's behaviors and actions but also how employees perceive their behaviors (Paustian et al., 2014; Hsieh & Wang, 2015). Lord & Maher (1991) explore socio-cognitive mechanisms of leadership information processing, in understanding leadership in organizational settings (Epitropaki et al., 2013; Foti et al., 2017). According to Lord & Maher (1993; 1991; also see Lord et al., 1984), a perceivers' mental representation (or perceptions) of leadership comprises various pieces of information about the leader and the environment in which they are embedded. The way perceivers organize these cognitive pieces of information affects the attributions they make about leaders which ultimately determine how favourable or unfavourable a leader is perceived and/or evaluated. This socio-cognitive approach to leadership paved the way to Implicit leadership theories that described how perception is influenced by prototypes of the the ideal types of leadership (Lord & Maher, 1991; Engle & Lord, 1997;Offerman et al., 2018; Epitropaki et al., 2013). In the similar vein of understanding leadership from a socio-cognitive perspective, wealth of studies have demonstrated the significance of understanding the follower attributes, which led to the inclusion of implicit followership theories (Sy, 2010; Van Gills et al., 2010; Uhl-Bien & Pillai, 2007). Several studies have shown that cognitive match with leader or follower category affects leadership behavioral ratings (Hansbrough et al., 2015; Coyle & Foti, 2015). These studies have largely

augmented that the potential bias of prototypicality associated with followers' perceptions of leader behaviors has been shown to underestimate the evaluation of individual attributes for leadership positions (Rosette et al., 2008; Gündemir et al., 2014). Within this research tradition, people have been shown to use leadership prototypes/schemas/stereotypes (Johnson et al., 2008; Festekjian et al., 2014) and other contextual information such as gender and race (Rosette et al., 2008; Johnson et al., 2008) to frame the information they gather about a specific target person.

Research in the areas of social psychology have shown that these stereotype-based judgments can be reduced by providing irrelevant additional individuating information about the target. This information may include target's hobbies, preferences and so forth. (Shoham et al., 2017; Meyvis & Janiszewski, 2002; Denheirinck, Layens, & Zyerbyt, 1989; Fein & Hilton, 1992; Locksley et al., 1982; Nisbett et al., 1981; Yzerbyt et al., 1994; Yzerbyt et al., 1997). Specifically, it is argued that even though the relevant information about the subject may lead to extremely positive (or negative) judgments, the concurrent presence of irrelevant information instigates a shift toward the midpoint of the scale. Nisbett et al., (1981) have labelled this phenomenon the dilution effect and contended that it reveals a genuine error of human judgment (Troutman & Shanteau, 1977). Several scholars have also argued that the presence of irrelevant information weakens the influence of the seemingly representativeness heuristic by adding characteristics that are uncommon (Hilton & Fein 1989; Locksley et al., 1982; Zukier, 1982; Kahneman & Tversky, 1973).

Other academic areas have argued that dilution happens because irrelevant attribute information emphasizes the fact that relevant personalized information is lacking (Layens, Yzerbyt, and, Shadron, 1992; Yzerbyt et al., 1994; Marques et al., 1988). Numerous studies in the field of psychology have validated the robustness of the dilution effect across various domains and contexts (Fein & Hilton, 1992; Macrae et al., 1992; Peters & Rothbart, 2000;

Slugoski & Wilson, 1998; Tetlock & Boettger, 1989; Tetlock, Lerner, & Boettger, 1996; Yzerbyt et al., 1997; Zukier, 1982; Zukier & Jennings, 1983). Additionally, applied research has acknowledged that the dilution effect reduces the quality of accountants' auditing judgments (Glover, 1997; Hackenbrack, 1992; Hoffman & Patton, 1997; Waller & Zimbelman, 2003), product decisions on the part of consumers (Meyvis & Janiszewski, 2002), hiring decisions (Highhouse, 1997) and judicial decision making (Fein et al., 1997; Chinander & Schweitzer, 2003). To our knowledge, there is not much literature on its impact in organizational settings. Literature concerning the prototypical bias and dilution effect is scarce thus allowing for sufficient room for researchers to test the effects of irrelevant information in alleviating stereotypes associated with the nexus of leadership perceptions. Based on all these considerations, this dissertation aims to enhance the understanding of the potential influence of irrelevant information on leadership perceptions. In the three essays founding this work, the main content of which is outlined in the following paragraphs, I together with my co-authors, examined the influence of irrelevant information on perceptions of leadership across contextual factors (such as race (white/black), past performance(good/average), description of leadership attributes (positive/negative)). Further corroborating our understanding, we also explored the mediating mechanisms which could potentially mediate the influence of irrelevant information on leadership perceptions.

Essay 1

Title	The more the better? How irrelevant information influences leadership perceptions
Author (s)	Naeem Zakir, Torsten Biemann & Irmela Koch-Bayram
Presentation	20th Annual conference of the EURAM (held in December 2020)
Recognitions	From the 20th EURAM Annual Meeting: Best Paper Award for the Leadership track of Organizations behavior strategic interest group

Essay 1 focuses on the influence of irrelevant information on perceived satisfaction, similarity, and effectiveness of leader across leader's race and performance. Social categorization theory posits that leaders are rated as most effective when they are perceived to have prototypical features of leadership (Lord & Maher, 1991). In other words, as time goes by, a set of beliefs about the behaviours and characteristics of leaders is developed in the minds of individuals. Such beliefs progress into the categories of leadership, and from these various categories, evolve a standard example or typical leader category known as a leadership prototype. Consequently, leaders whose characteristics are more consistent, with the rater's prototype of leaders, are evaluated more positively. Numerous research studies have shown that the rater' preferences towards their ideal leadership prototypes affect ratings of leaders across various domains. These involve gender (Brenner et al., 1989; Eagly & Karau, 2002; Heilman et al., 1989; Nye & Forsyth, 1991; Schein, 1973; Scott & Brown, 2006), race (Rosette et al. 2008; Gundemir S, 2015) cultural background (Ensari & Murphy, 2003), and politics (Foti, Fraser, & Lord, 1982). Studies have shown that white leaders are considered as more prototypical and are generally endorsed as ingroup members of leadership as compared to their black counterparts who are regarded as outgroup members. Similarly, research has also shown that leadership perceptions are also affected by how leader's performance where information that leader has performed well yields favorable ratings (DeRue et al., 2011).

While these studies have achieved considerable success in disentangling the above contextual factors, they overlook one crucial aspect of real-world judgment i.e., raters not only possess relevant information but also irrelevant information that they believe to have zero weight in prediction. Normatively, one would expect that predictions would solely rest on relevant information. However, there are good theoretical grounds in social psychology that demonstrate that exposure to irrelevant information might dilute (make ratings less extreme) or enhance (make ratings more extreme) predictions. Building on arguments from social categorization theory from leadership studies and dilution (enhancement effect) of irrelevant information from social psychology literature, essay 1 explores the potential influence of irrelevant information on leadership perceptions moderated by leader's race and performance.

Across two studies, this essay establishes that additional irrelevant information leads to enhancement of ratings. Interestingly, our results yielded that the influence of irrelevant information was more nuanced for outgroup category members i.e., for blacks and average performing leaders. Accordingly, Essay 1 contributes to social categorization literature by showcasing the potential influence of irrelevant information on leadership perceptions.

Essay 2

Title	How relevant is irrelevant information? The effect of non-diagnostic information on leadership perceptions
Author (s)	Naeem Zakir, Irmela Koch-Bayram & Torsten Biemann
Presentation	82nd Annual meeting of the AOM (held in Aug 2022)
Recognitions	From the 82nd Annual Meeting of AOM: AOM Best Paper Proceedings

Essay 2 focuses on the influence of irrelevant information on predictions of leadership behaviors (*Task-oriented and Relationship-oriented behaviors*) and outcomes (*Satisfaction with the leader and Leadership effectiveness*) across leadership attribute descriptions (*positive vs negative*). Research shows that behaviors associated with task-oriented leadership and relationship-oriented leadership constitute a substantial proportion of day-to-day leadership, especially at a supervisory level (Komaki et al., 1986). Individual components that make up the perception of these behaviors can be acknowledged as either positive or negative in nature. For instance, GLOBE studies found universally positive (negative) leadership attributes that lead (impede) to effective leadership (House et al., 1999; Javidan et al., 2006). The distinct composite of these characteristics serves as an antecedent to task-oriented and relationship-oriented leadership behaviors (Yukl, 2012; DeRue et al., 2011). To exemplify positive attributes, encouraging confidence, for instance, has been attributed with perceptions of relationship-oriented leadership behaviors whereas clarifying tasks with task-oriented leadership behaviors (Yukl, 2012; Behrendt et al., 2017). On the contrary, negative behaviors such as abusive supervision, inconsistent instructions and being vengeful have been shown to be detrimental to leadership perceptions and success (Schyns & Schilling, 2013; Tepper, 2007). As mentioned above, leadership behaviors have also been shown to influence leadership outcomes such as effectiveness and satisfaction (Burke et al., 2006). More specifically, task-

oriented behaviors such as planning tasks and clarifying responsibilities have been shown to endorse significant influence over leadership effectiveness and satisfaction (Shipper & Dillard, 2000; Amabile et al., 2004). Similarly, a positive relationship-oriented leadership behavior such as expressing confidence in subordinates have also been shown to have a significant effect on leadership effectiveness (Amabile et al., 2004). In the similar fashion, negative task-oriented behaviors (such as making a hasty response, discouraging questions and input) and negative relationship-oriented behaviors (such as being hostile, asocial) have been shown to negatively affect leadership effectiveness (Mitchell & Ambrose, 2007; Tepper, 2000 and 2007).

Although such studies provide a strong theoretical framework of precursors that affect followers' leadership evaluations and perceptions, the potential influence of irrelevant information has largely been overlooked. Drawing on representativeness heuristic account of dilution effect, therefore, we propose that while rating leadership outcomes (satisfaction with the leader and leadership effectiveness) and behaviors (Task-oriented and Relationship-oriented behaviors) based on positive or negative leadership attribute information, the existence of irrelevant information (e.g. individual lives in a small town) will influence the perceptions of the subjects such that irrelevant information will reduce the leadership ratings of targets showcased with positive leadership attribute information whereas increase the leadership ratings of targets described with negative leadership attribute information.

Essay 3

Title	Exploring the Influence of Irrelevant Information on Leadership Perceptions – Disentangling the Mechanisms at Play
Author (s)	Naeem Zakir, Torsten Biemann

Essay 3, in its essence, focuses on disentangling mechanisms through which the influence of irrelevant information may operate. More specifically, essay 3 aims to explore the influence of irrelevant information on ratings of perceived leadership effectiveness and prototypicality mediated by perceived complete image, increased cognitive load and similarity across leadership attribute descriptions (positive vs negative). While exploring the three mechanisms we propose the following three mechanisms.

First, the influence of irrelevant information on leadership perceptions might be that it provides additional cues that lead subjects to generalize from irrelevant information about the target and make their image as more complete in subject's embodied cognitions. Particularly, exposure to irrelevant information after getting introduced to relevant pieces of information (which are positive in nature) have been shown to lead to extreme positive ratings and vice versa. This leads to the expectation that irrelevant information would enhance extremity of predictions through its assimilation to support relevant pieces of information. This effect is commonly referred to as enhancement effect (Nisbett & Ross 1980). Accordingly, we propose that irrelevant information results in extreme predictions for leadership effectiveness and prototypicality by recalling information which serves to generalize and completes target image in the subject's cognition through memory-mediated process. Second, irrelevant information may influence leadership perceptions through increasing cognitive load on subjects' working memory thereby distracting subjects from recalling relevant pieces of information. In other words, presence of irrelevant information can divert the attention away from relevant pieces of

information about the target. In the series of experiments, Krawczyk et al., (2011) investigated the influence of irrelevant cues on problem solving ability of individuals and found that presence of irrelevant information yielded increased distraction and resulted in impaired accuracy. Similarly, research by Maurer and Lord (1991) found the impact of cognitive demands on leadership perceptions. Accordingly, we propose that irrelevant information results in suboptimal predictions for leadership effectiveness by increasing cognitive load which results in distraction from relevant information. Third, irrelevant information may influence leadership perceptions thereby reducing the similarity between features of target and outcome. Nisbett et al (1981) argued that presence of irrelevant information influences perceptions by reducing the similarity between target and outcome. More specifically, irrelevant information presented to subject's receiving positive leadership behavior description will lead to less extreme positive ratings because prototypes associated with positive leadership description and outcome (leadership effectiveness) gets diluted with irrelevant target information that neither characterizes nor contradicts subject's perception of an outcome. Similarly, irrelevant information presented to subject's receiving negative leadership behavior description will lead to less extreme negative ratings because prototypes associated with negative leadership description and outcome (leadership effectiveness) gets diluted with irrelevant target information that neither characterizes nor contradicts subject's perception of an outcome. Summing up, the presence of irrelevant information across positive and negative leadership behaviors will bring predictions towards mid-point of the scale. Essay 3 establishes that when subjects receive irrelevant information in addition to relevant information, they tend to provide less extreme ratings over perceived leadership effectiveness of a given target. While expanding existing research that investigates when implicit leadership theories influence leadership perceptions (e.g., Shondrick et al., 2010; Lord et al., 2020), this study sheds light on a limit of the Dilution effect "influence of irrelevant information" (Nisbet et al., 1981). In the

process, our study adds to the existing literature that underscores the importance of investigating the mediating mechanisms that explain the process through which irrelevant information might influence our perceptions. These mediating mechanisms complete image, increased cognitive load, and similarity adds to examining subjects' socio-cognitive processes to comprehend the development of the relationships between interpretation of relevant and irrelevant information.

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Essay 1

1. The more the better? How irrelevant information influences leadership perceptions

Abstract

When raters evaluate leaders, they encounter both relevant and irrelevant information. Additional irrelevant information might either dilute ratings, resulting in less extreme judgments, or ratings might be enhanced. We integrate research on dilution and enhancement effects from social psychology into the leadership literature and develop hypotheses on the effect that irrelevant information has on ratings of satisfaction with the leader and perceived leader effectiveness. In addition, we suggest that the rating bias due to irrelevant information is contingent on leader's race and performance. Our results give evidence for enhancements effects. However, we do not find support for leaders' race and performance as potential moderators of this effect.

Keyword: Leadership perceptions, stereotypes, dilution effect, enhancement effect.

1.1 INTRODUCTION

Promoting and selecting competent leaders significantly results in individual and organizational level outcomes such as increased productivity and performance (Kossek et al., 2017; García-Morales et al., 2012; Alrowwad et al., 2017; Harris et al., 2009; Cheung et al., 2018; Houge & Lord, 2007; Pfeffer & Tromley, 1995). Whereas promotion and selection of effective leaders is a critical priority, ensuring objective standards of leadership assessment poses a serious challenge for organization (Powell et al., 2004). Research on the follower-centered perspective has provided evidence that leadership assessment is greatly influenced by follower's cognition of leaders, which entails assumptions, beliefs about the leadership in any given situation, or in other words their implicit leadership theories (Foti et al., 2017; Murphy et al., 2017; Lord et al., 1984; Lord et al., 1982). These implicit theories reflect cognitive categories (prototypes) used by followers to distinguish leaders from non-leaders (Lord et al., 2017; Lord et al., 1984; Gündemir et al., 2014). Both leaders' and followers' characteristics significantly influences how leaders are perceived, which ultimately affects how they are evaluated. Research has shown that raters usually encounter several pieces of information for leadership assessment and chose only those which they deem relevant for their decisions, such that qualification, performance, and experience (Cole et al., 2007; Bycio et al., 1995). However, in practice, raters encounter a mixture of relevant information and additional pieces of information that hold almost zero validity for the assessment, e.g., hobbies or favorite sports in a CV. Not all these cues are equally important or relevant to the judgement such that some pieces will be considered as highly relevant whereas others will be considered as less relevant. Leadership research has largely debated on relevant information, whilst ignoring the influence of less relevant pieces of information. Therefore, our paper examines the influence of irrelevant information by focusing on how irrelevant information is considered in making leadership predictions and whether it influences raters' leadership perceptions.

The impact of irrelevant information on judgements has been addressed in social psychology. One theoretical explanation suggests that irrelevant information will dilute the judgment. Kahneman & Tversky (1973) argued that while making judgements about a given stimulus, subjects rely on heuristic strategies. They use these heuristics to classify a stimulus as per its similarity with the features of the outcome (schemas, prototypes), i.e., the greater the similarity, the more extreme the judgment that the stimulus belongs to the outcome. Nisbett and his colleagues (1981), by following Kahneman and Tversky's (1973) representative heuristic, argued that perceivers view relevant information as cues which are representative of features that are common to the target and perceiver's conception of the outcome whereas irrelevant information are cues that are not common. They argue that the presence of irrelevant information dilutes the influence of the seemingly representative characteristics (stereotypes) by adding characteristics that are uncommon (Zukier, 1982, Zukier & Jennings, 1983; Kahneman & Tversky, 1973; Troutman & Shanteau, 1977). This influence of irrelevant information in reducing the similarity of a target with the stereotype-based outcome has been coined as dilution effect by Nisbett et al. (1981). For instance, Nisbett (1981) asked participants to provide their judgment on whether the target individual is a child abuser or not. The vignettes provided to make judgments either included the diagnostic information that indicated that individual is a child abuser or this diagnostic information plus non-diagnostic information. The items used for non-diagnostic information held no value in predicting that the target is child abuser or not. They found that subjects made more extreme judgements in the diagnostic only condition as compared to moderate judgements when both relevant and irrelevant information were presented.

Another theoretical explanation ponders that irrelevant information may enhance the extremity of judgment in the sense that addition of irrelevant information may increase the significance of relevant information (Peters & Rothbart, 2000). Specifically, it is argued that

additional information about a target may increase or decrease stereotypic judgment. According to Linville (1982), additional information about ingroup and outgroup members enhances the perceived similarity between them rather than reducing it. Similarly, Park and Rothbart (1982) also revealed that when additional information is provided, individuals find it difficult to differentiate between stereotypic and counter stereotypic traits for ingroup members as compared to outgroup members and therefore leads to extreme predictions for ingroups as compared to outgroup.

Although dilution and enhancement explanations of irrelevant information are largely explored in the areas of auditing judgments (Glover, 1997; Hackenbrack, 1992; Hoffman & Patton, 1997), consumer psychology (Meyvis & Janiszewski, 2002), hiring decisions (Highhouse, 1997; Humphrey R.H 1997), jury decisions (Chinander & Schweitzer, 2003), their implications have rarely been tested in the leadership context. The potential of dilution or enhancement effect of irrelevant information exist in leadership evaluations because leadership predictions are shown to be influenced by leadership perceptions, which usually involves followers' prototypical judgments based on stereotypes (Flyn et al., 2016; Lord, 1985; Meindl & Ehrlich, 1987; Meindl et al., 1985; Rush et al., 1981; Rush & Russel, 1988). For example, social categorization and implicit leadership theories suggest that a rater's mental representations of prototypical leadership attributes determine how an individual is evaluated on leadership abilities. That is, the more prototypical a target individual, the more positive the evaluation and vice versa. (Foti et al., 2017; Chung-Herrera & Lankau, 2005; Waring, 2003). These mental representations are often based on social stereotypes. For example, numerous research studies demonstrate that racial stereotypes, such as black individuals are incompetent, lazy, and more interpersonal (Rossett et al., 2008; Reid et al., 2009; Correll & Ridgeway 2006; Berger et al., 2014; Gündemir et al., 2014), and gender stereotypes, such as men are more competent leaders (Carli & Eagly, 2007; Ely et al., 2011; Heilman, 2001; Eagly & Krau, 2002;

Amodio & Devne 2006), may dilute the perception of these individuals as a leader, because they are generally not viewed as prototypical leaders.

Although Implicit leadership studies have allowed researchers to identify that leader's information which involves similar features to that of prototypical leaders typically results in favorable ratings (Flyn et al., 2016; Lord, 1985; Meindl & Ehrlich, 1987; Meindl et al., 1985; Rush et al., 1981; Rush & Russel, 1988), no effort has been made so far to experimentally investigate the extent to which irrelevant information affects individuals' leadership perceptions. To fill this gap, we draw on dilution and enhancement effects of irrelevant information to experimentally examine how irrelevant information influences leadership ratings and perceptions.

With our experiments, we show that leadership perceptions are influenced by the existence of irrelevant information. We begin with a brief review of prior research on leadership perceptions, dilution effect and enhancement effect. Subsequently, we develop our hypothesis and present two experiments that we conducted to test our hypothesis. We conclude our study by discussing the results and elaborating on future research and practical implications considering the influence of irrelevant information in judgements related to leadership perceptions.

1.2 THEORY AND HYPOTHESES

1.2.1 Dilution effect

Socio-cognitive studies have elaborated that individuals often make suboptimal (biased) predictions because they rely on heuristics of representativeness information stored in memory as schemas or prototypes (Tversky & Kahneman, 1973; De. Martino et al, 2006; Strough et al., 2011; Gigerenzer & Gaissmaier, 2011; Raab et al., 2019; Ceschi et al 2019; Schwarz & Vaughn, 2002). In their seminal work, Kahneman & Tversky (1973) have explored

the less optimal decision-making standards under the notion of heuristics. They argued that while making perception about a given stimulus, subjects rely on heuristics. They use these heuristics to classify a stimulus as per its similarity with the features of the outcome (schemas, prototypes). The greater the similarity, the more extreme the judgment that the stimulus belongs to the outcome. For example, if individuals compare a target student (e.g., someone who studies 35 hours a week) with their prototype of an academically successful student, they are likely to predict that the target student has a high GPA score.

Tversky (1977) argued that judgment of similarity is the positive function of features common to both target and outcome and the negative function of features that are not common. Consequently, addition of common features should increase the similarity of the stimulus with the outcome, whereas additional non-common features should reduce this similarity and lead to a less extreme judgment (Tversky, 1977). For instance, a prediction that a student will have high GPA score will be reduced, if one learns that the same student likes to eat pizza or drives a Toyota. The additional information reduces the similarity of the target with the prototype of a successful individual (Peters & Rothbart 2000; Kemmelmeier 2007; Nisbett et al., 1981; Zukier & Jennings, 1983)

Following this terminology, relevant information could be determined as cues that are representative of features that are common to the target and subject's conception of the outcome. Accordingly, irrelevant information could contain cues that are not common. The presence of irrelevant information weakens the influence of the seemingly representative features (stereotypes) by adding characteristics that are uncommon (Zukier, 1982; Kahneman & Tversky, 1973; Troutman & Shanteau, 1977; Yzerbyt, et al., 1997; Yzerbyt, et al., 1994). This influence of irrelevant information in reducing the similarity of the target with the outcome has been coined as *dilution effect* by Nisbett et al. (1981). Specifically, it is argued that even though the diagnostic or relevant information about the target may lead to extremely

positive (or negative) judgments, the concurrent presence of non-diagnostic or irrelevant information may reduce the judgment extremity thereby instigating a shift toward the midpoint of the scale. For instance, Nisbett et al. (1981) asked participants to provide their judgment on whether the target individual is a child abuser or not. The vignettes provided to make judgments either included the diagnostic information that either indicated the individual is a child abuser or diagnostic and non-diagnostic information. The items used for non-diagnostic information (such as he manages a hardware store) held no value in predicting that the target is child abuser or not. They found that subjects made more extreme judgements in diagnostic only condition as compared to moderate judgement when both diagnostic and non-diagnostic information were presented. They argued that this reduction is mainly because irrelevant information reduced the similarity of target features with the prototypical features of outcome. Similarly, numerous leadership studies explain that dissimilarity of target individuals with the prototypical image of leader often leads to lower ratings and vice versa. Thenceforth, it will be interesting to disentangle whether irrelevant information leads to reduction or enhancement of target's similarity with the prototypical image of the leader.

1.2.2 Enhancement effect

Early research on social perception argues that individual's interpretation of different pieces of information varies with context such that different pieces of information do not simply add together to form a perception rather it may interact in complex ways (Asch, 1946). Peter and Rothbart (2000), in contrary to dilution effect, argued that nondiagnostic information may influence predictions by altering the predictive strength of diagnostic information. Accordingly, it may be possible to create irrelevant information that strengthens rather than weakens target similarity with the outcome. If so, this will result in enhancement effect rather than dilution effect. Specifically, they argue that if typicality of irrelevant information to relevant information is high, it will result in extreme predictions rather than less extreme

predictions. They tested a typicality hypothesis by considering the stereotypes of fraternity members as diagnostic information and number of books read by student as outcome behavior (a typical fraternity member is usually perceived as reading fewer books). They found that irrelevant information (e.g., likes to work on his tan) that is typical of relevant information resulted in enhancement effect. Similarly, Garcia and Mackie (2001) also demonstrated that larger amount of information about a given stimulus results in enhanced familiarity with the target. A similar notion has also been discussed by studies examining the influence of irrelevant information on ingroup and outgroup stereotyping. These studies have also shown that additional counter stereotypic information about the ingroup and outgroup enhanced the subject's confidence that the target possess the criterion (Locksley et al., 1982; Denhaerinck et al., 1989). Similarly, leadership ratings also encounter that raters normally favor targets whose features are like their prototypical image of leaders. Henceforth, it is worthy to examine whether irrelevant information enhances the similarity of target with the leader prototypes of raters.

1.2.3 Leadership perceptions

A wealth of leadership studies focused on information processing and the process of leadership perceptions by considering the characteristics of both leaders and followers (Brown & Lord, 2001; Epitropaki & Martin, 2005; Lord & Shondrick, 2011; Asrar-ul-Haq & Kuchinke, 2016; Mehra et al., 2006). Specifically, social categorization and implicit theories of leadership depict that individuals carry implicit prototypes of an ideal leader, which succinctly influence their perceptions about a given stimulus (Lord & Maher 1991; Offermann & Coats, 2018). These leadership perceptions ultimately describe how good or bad an individual is evaluated in terms of their leadership effectiveness (Rosette et al., 2008), thereby helping perceivers to distinguish leaders from non-leaders (Foti et al., 2017). For example, research has shown that blacks are stereotyped as mediocre fit to leadership compared to their white counterparts

(Chung-Herrera & Lankau, 2005; Gündemir et al., 2014; Rosette et al., 2008). Similarly, leadership perceptions have also been shown to be influenced by gender stereotypes i.e., men are generally perceived to have better leadership qualities as compared to women (Mölders et al., 2018). Although organizations have realized the importance of having a diverse and inclusive culture (Gibson & Fernandez, 2018), such stereotypes still make it difficult for marginalized groups to be considered for leadership positions as compared to whites (Marquardt et al., 2018; Mölders et al., 2018; Rosett et al, 2008). These studies illustrate that leadership perceptions are often based on social stereotypes that lead to biased or erroneous decisions (Rothbart, 2015; Lee, 2015).

1.2.4 Dilution effect and enhancement effect in leadership perceptions

We propose that the potential of both dilution and enhancement effect of irrelevant information exist in leadership perceptions because these perceptions have been shown vulnerable to stereotypes (Ilie, 2017). Therefore, we argue that cognitive information processing of leadership perceptions is prone to judgment bias associated with irrelevant information i.e., when subjects form judgements about leaders, they usually encounter many pieces of information (Mariappanadar, 2018). Not all this information will be equally important for their judgement. Some pieces will be highly relevant as compared to others. Studies show that subjects undergo normative judgements while focusing only on relevant information (Tetlock & Boettger, 1989; Tetlock et al., 1996). But in some scenarios, subjects find it difficult to ignore the irrelevant pieces of information which ultimately dilutes their judgment (Nisbett et al., 1981; Denhaerinck et al., 1989; Waller & Zimbelman, 2003; Highhouse, 2009). Therefore, this paper explores whether leadership perceptions are influenced by additional irrelevant pieces of information i.e., by considering the dilution and enhancement effect mechanisms we examine that whether the presence of irrelevant pieces of information influence a rater's perception of similarity, satisfaction, and effectiveness with the leader.

1.2.4.1 Similarity, Satisfaction with the leader and leadership effectiveness

A wide array of studies demonstrate that leaders undergo various leadership styles and behaviors with varying outcomes (Oshagbemi & Ocholi, 2006). These styles and behaviors carry a significant influence over several employee outcomes such as satisfaction with the job, satisfaction with the leader, similarity with the leader, turnover intentions, perceived effectiveness (Hater & Bass 1988; Huang et al., 2005; Krishnan, 2005b; As-sadeq & Khoury, 2006; Uhl-Bein & Pillai, 2007; Uhl-Bein et al., 2009; McGuire et al., 2003; Para-González et al., 2018). Several research studies have indicated that the influence of leadership depends on employees' characteristics such that both leaders and followers mutually interact to create a dynamic process through their perceptions of each other (Shondrick & Lord 2010). This interaction has been shown to significantly influence the perceived leadership effectiveness (Harms & Credé, 2010; Chen & Silverthrone, 2005; Erkutlu, 2008).

As argued by social categorization theory, perceptions of leadership effectiveness are greatly influenced by the strength of match with the leadership prototypes i.e., the greater the match, greater the perceptions favorability (Turner & Haslam, 2001; Hogg et al., 2012; Van Knippenberg, 2011; Huang et al., 2005; Alonderiene & Majauskeite, 2016; Robert et al., 2016; Para et al., 2018; Smith et al., 2006). For example, a large body of research has demonstrated that White people are generally perceived as successful leaders as compared to their black counterparts (Cranmer & Haris, 2015; Rosett et al, 2008). The mere information that the target is White and has been a good performer, triggers the prototype of a successful leaders. This dogma of information relevance implies that similarity is a positive function of attributes that are common to both target and outcome (leader prototypes). Contrarily, additional irrelevant individuating information of the target should carry a zero value because it does not guarantee any resemblance to the outcome, for example, the white individual has blue eyes, he/ she likes to eat pizza. Following these lines of augmentation, we argue that while forming leadership

perceptions related to satisfaction similarity, and effectiveness, the existence of individuating irrelevant information (e.g., leader likes to eat pizza) will influence the perceptions of the subjects. Additionally, we argue that this influence can go either in the direction of dilution effect (weaken the prediction) or towards enhancement effect (strengthen the prediction)

H1: Irrelevant information will influence the perceptions of similarity with the leader (H1a), perceptions of satisfaction with the leader (H1b), and perceptions of leadership effectiveness (H1c).

1.2.4.2 Moderating effect of Race

Race plays pivotal role in signifying how we differentiate ourselves from others in the large social systems by structuring our complex social structures (Omi & Winant, 2014; Yanow, 2003, 2015). A significant branch of leadership research deals with the theme of race and leadership perceptions (Ospina & Foldy, 2009; McCuiston et al., 2004; Wood, 2002; Fleenor et al., 2010; Hughes, 2015; Hanley & O'Rourke, 2016; Chin et al., 2016). As argued by Lord and Maher (1991), leadership prototypes guide the perceptions of ingroup and outgroup members i.e., the individuals whose features are similar to prototypical group category are perceived as ingroup and vice versa. For example, numerous research studies have argued that White individuals are generally perceived as ingroup member of successful leadership category as compared to Black (Martin & Epitropaki, 2005; Eagly & Chin, 2010; Ospina & Foldy, 2009; Rosette et al., 2008; Sy et al., 2010).

Research suggests that the influence of irrelevant information on predictions of outgroup members is more nuanced in reducing stereotypes against them as compared to its influence on predication on ingroup members (Denhaerinck, et al., 1989). Thenceforth, keeping the potential of dilution and enhancement effect of irrelevant information we argue that

existence of irrelevant information about the given target will influence subject's stereotype-based judgment.

$H2_a$: The effect of irrelevant information on perceptions of similarity with the leader is moderated by race in such a way that this effect will be stronger for black than for white leaders.

$H2_b$: The effect of irrelevant information on perceptions of satisfaction with the leader is moderated by race in such a way that this effect will be stronger for black than for white leaders.

1.2.4.3 Moderating Effect of Leader's Performance

Prior research has shown that leadership perceptions are also influenced by the interplay between leader's performance (DeRue et al., 2011) and leadership prototypicality (ingroup attributes) (Turner & Haslam, 2014; Platow & van Knippenberg, 2001). A social categorization approach to leadership signifies the association between performance and leadership porotypes such that employees view leaders as more effective if they stand similar to the leadership prototypes and vice versa (Kolle et al., 2013). In the studies conducted by Kolle et al. (2013) leader's performance has been shown to influence the perceived prototypicality i.e., poor performance declined perceived leadership prototypicality and good performance amplified it. However, there is vast amount of evidence that shows the influence of performance on leadership perceptions, there is still a lack of empirical evidence that illustrates whether relevance of information matter while making judgment about leadership. In other words, normative grounds of judgment would imply that while making leadership perceptions (e.g., leadership effectiveness, satisfaction with the leader), individuals would opt for the available information, specifically relevant information. Rationally, an individual should ignore the irrelevant pieces of information, but research illustrates that human judgments are unduly

influenced by irrelevant pieces of information (Waller & Zimbelman, 2003; Peter and Rothbart, 2000; Nisbett et al., 1981). Therefore, we argue that leadership perceptions will be influenced by additional irrelevant individuating information. And as dilution effect has shown that this effect is more nuanced for outgroup members (Denhaerinck, 1989), we argue that the influence of irrelevant information will be strong for average (low) performing leaders as compared to good (high) performers.

$H3_a$: The effect of irrelevant information on perceptions of leadership effectiveness is moderated by leader's performance such that this effect will be stronger for average performance as compared to good performance.

$H3_b$: The effect of irrelevant information on perceptions of satisfaction with the leader is moderated by leader's performance such that this effect will be stronger for average performance as compared to good performance.

We test our hypotheses in two experimental studies that systematically examine the influence of irrelevant information on leadership perceptions. In Study 1, we tested our hypothesis 1a, 1b as well as 2a and 2b in which we focused on the effects of irrelevant information on leadership perceptions such as satisfaction and similarity with the leader as well as whether this influence vary as per the race of the target (White/ Black). In Study 2, we tested our hypotheses 1b, 1c, as well as 3a and 3b in which we examined the influence of irrelevant information on perceptions of leadership effectiveness and satisfaction as well as whether this influence vary as per the leadership performance (Good/Average).

1.2.5 Pre-test

Prior to conducting our experiments all items of irrelevant information were presented to pre-test subjects to infer non-diagnosticity of information**.** Subjects were recruited from Amazon Mechanical Turk, a popular tool for the recruitment of research subjects (Clifford et

al., 2015; Mason et al., 2012; Chandler et al., 2014; Keith et al., 2017; Peer et al., 2014). The demographics of the participants in this pre-test were n= 127, Male 81 (63.8%) Female 46 (36.2%) with the mean age of 30.9 years (*SD = 11.69*). Of these, a majority were from White (37%) and Asian (48%) race groups. We screened 15 items for this task. Subjects were asked to rate each item according to its goodness of fit with their image of a typical leader using 7-point Likert scale (ranging from 1 = Very strongly disagree to 7=Very strongly agree). For use in the experiment, we selected items which showed that the items selected as non-diagnostic information are atypical such as "he likes to surf on the beach" and "In his leisure time, he likes to do sport".

Previous research has shown that facial expressions may also influence how we perceive someone as a leader (Trichas et al., 2017; Livingston & Pearce, 2009). To alleviate this effect, we conducted another pilot study to make sure that the selected photographs of fictitious managers appear to be as similar as possible i.e., choosing pairs (Black and White) with the smallest mean difference. To conduct this pre-test, participants were recruited from Amazon Mechanical Turk. We chose 30 pictures (15 Black, 15 White) of managers from one of the leading software companies in Germany. The demographics of the participants in this pre-test were n = 59 which included male 34 (57.6%) female 23 (39.0) and others 2 (3.4%) with the mean age of 33.7 years (SD = 13.92). We asked participants o to provide their ratings on the positive first impression, leadership considerations and age of the people in the photograph. We used propensity score matching (Zhu et al., 2012; Caliendo and Kopening, 2008), to draw on these inferences and selected the pairs with least mean difference. As we are interested in the pairs who look similar with respected to their expression as leaders, the mean values taken to perform propensity score matching were only from leadership consideration. For use in the experiment, we chose 10 pictures (5 Black, 5 White) with least mean difference.

1.3 STUDY 1

1.3.1 Method

1.3.1.1 Sample

The participants were recruited from Amazon Mechanical Turk. The total sample comprised of 501 individuals, of whom a majority were from the U.S. Given the average time taken by majority of the participants was approximately 5 mins, we reduced our sample to 458 individuals: 247 (53.9 %) male and 211 (46.1 %) female, others i.e., excluded those with less than 5 mins to avoid any related outliers. The mean age of the respondents of our study was 38.8 years (SD= 13.85) More than 85 percent of the participants reported that they were currently employed. Of these participants, 362 (79%) were white, 22 (4.8%) were Hispanic, 46 (10.0%) were African American, 5 (1.1%) were Native American, 19 (4.1%) were Asian, and 4 (0.9%) did not indicate their race.

1.3.2 Procedure

We used a 2 (Race: White vs Black) × 2 (diagnostic vs diagnostic and non-diagnostic information) between- subjects design to explore the influence of irrelevant information on leadership perceptions (similarity & satisfaction with the leader) associated with target individual's race (only male targets were used in this study to reduce design complexity). The design of the study involved asking subjects to form impressions from various types of information presented and use those impressions in making predictions about the target. All participants were shown a description and photographs (5 Black, 5 White) of fictitious manager employed in a Software company. To ensure resemblance with real world scenarios (Gray, 2013), we chose the photographs of actual managerial level employees of German software company. Within the scenarios, we described a situation where participants presume that they are working for a certain manager in a software company that is transitioning to a new software

in the near future. After reading this initial information, participants were asked to rate the attitudes and behaviors of their manager. The distribution of description was randomized based on race (white vs black) and availability of non-diagnostic information (diagnostic vs diagnostic and non-diagnostic).

Subjects in the control condition (no dilution) were only provided with the relevant information about the target i.e., information which is directly related to draw assessments about leadership based on the task and relationship-oriented behaviors of managers described in the description. Subjects in the dilution group were provided with both diagnostic and non-diagnostic information i.e., information that is not necessarily related to assessment of leadership behaviors and attitudes (e.g., When he drives, he likes listening to radio; He lives in the suburbs of a big city, see Appendix A). After reading the description, participants then provided their perception of leadership using 5-point Likert scale (i.e., 1= Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5= Strongly Agree).

Prior to assessing the dependent variable, participants responded to several attention checks to make sure that their response meets the conditions of legitimacy. We asked participants to indicate whether they received a lot of information about their leader? in "Diagnostic" and "Dilution" conditions (e.g., My leader lives in the suburbs of the big city) (1= Yes, 2=No, 3= I don't remember). In order to make sure that participant remember the vignette, we also asked them to tell us about the color of their leader on scale ranging from 1= pale white to 5= dark brown)

1.3.3 Measures

We used a 5-point Likert-scale to collect responses of the subjects for the following measures. Cronbach's alpha values of these measures are reported in Table 1.

Similarity with the leader. To measure subject's perceptions of similarity with the leader, we used the 3-items van Knippenberg & van Knippenberg (2005). The items were modified to capture the individual level perceptions instead of group level in general. A sample item from this scale is "My leader and I are similar in many ways."

Satisfaction with the leader. We used the 4-items scale from Bass and Avolio (2000) to measure subject's perceptions of satisfaction with the leader. A sample item for this scale is "I am satisfied with the leadership style of my leader."

Control Variables. To relieve our results from the influence of possible control variables, we controlled for several variables which have been shown to influence leadership perceptions in literature (Lord et al., 1986). These were gender (coded as male (1), female (2)), age (measured across 4 age groups such as 1 = "10 – 29 years old", 2 = "30-49 years old", 3 = "50-69 years old", 4 = "70 years and above"), ethnicity (coded as 1= White, 2 = Hispanic, 3 = Black, 4 = Native American, 5 = Asian, 6 = others), education (ranging from 1 = "High school graduate to 7 = "Other advanced Degree"), currently employed (measured across 1 = "Yes", 2 = "No"), tenure in the organization (measured across 0 = "0 Years" to 3 = "more than 10 years"), stayed abroad (1 = "Yes" or 2 = "No"), purpose of staying abroad (measured across 0 = "Never", 1 = "Work reasons", 2 = "Personal reasons"), need for cognition (adopted from Madrid & Patterson, 2016), need for closure (adopted from Eike M.R. 2014).

1.3.4 Results

1.3.4.1 Attention Checks

We tested the effectiveness of our manipulation with attention checks by comparing subjects' groups with respect to their legitimacy across each manipulation by using independent t-test. i.e. (M_{Diag} = 2.09, SD_{Diag} = 0.492 and M_{Dil} = 1.32, SD_{Dil} = 0.452, t (456) = 17.46, $p < .001$) indicating that raters adhered to the legitimacy of the condition. Similarly,

attention check regarding the target's race also showed significant results i.e. (M_{White} = 2.26, SD_{White} = 0.868 and M_{Black} = 4.87, SD_{Black} = 0.106, t (456) = -28.63, p < .001)

1.3.4.2 Main results

Table 1.1 displays means, standard deviations, and zero order correlations for the main variables.

Table 1.1: Study 1: Descriptive Statistics and Correlations among study variables

	Items	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
Diagnostic (0). Non-Diagnostic (1)	1	0.51	0.50																
White(0). Black(1))Race	1	1.51	0.5	0.03															
Satisfaction with the leader	4	4.06	0.55	0.11*	0.08	(0.93)													
Similarity with the leader	3	3.95	0.8	0.14**	0.09*	0.75***	(0.90)												
Need for cognition	5	3.14	0.83	0.10*	0.09	0.11*	0.18***	(0.51)											
Need for closure	5	3.4	0.85	-0.07	0.10*	0.11*	0.04	0.20***	(0.80)										
Task Leadership	4	3.31	0.39	0.02	0.04	0.25***	0.18***	0.38***	0.21***	(0.84)									
Relation Leadership	4	4.31	0.61	0.08	0.04	0.86***	0.54***	0.01	0.11*	0.18***	(0.78)								
Gender	1	1.47	0.51	0.03	0.03	0.06	0.11*	-0.12*	-0.10*	0.16***	0.08								
Age	1	1.97	0.69	-0.01	-0.05	0.01	-0.08	-0.04	-0.08	0.13**	0.05	0.10*							
Ethnicity	1	1.49	1.09	0	0.14**	0.06	0.06	0.06	0.01	-0.06	-0.02	-0.08	-0.12**						
Education	1	3.24	1.29	0.06	0.08	-0.04	-0.02	0.18***	0.13**	0.01	-0.04	-0.06	0.03	0.11*					
Currently employed	1	1.15	0.36	-0.03	-0.02	0.12**	0.08	-0.12**	-0.06	0.05	0.13**	0.07	0.07	-0.07	-0.12**				
Organizational tenure	1	1.4	0.88	0.03	0.03	-0.12**	-0.06	0.07	-0.03	-0.02	-0.09	-0.02	0.16***	-0.07	0.14**	-0.54***			
Time spent outside	1	2	1.33	-0.03	0.11*	-0.03	-0.02	0.11*	0.14**	-0.09	-0.06	-0.13**	-0.02	0.09	0.27***	-0.13**	0.08		
Purpose of stay	1	1.16	0.89	0.05	-0.01	-0.04	-0.03	0.11*	0.06	0.03	-0.06	-0.15**	0.02	0.01	0.12*	-0.21***	0.16***	0.36***	

Computed correlation used Pearson-method with listwise-deletion.

*Notes. N = 458; * p < 0.05, ** p < 0.01, *** p < 0.001; α = (values in parenthesis represents Cronbach's alpha), Diagnostic. Non Diagnostic: 0 = "Diagnostic", 1 = "Diagnostic and Nondiagnostic"; Race: 0 = "White", 1 = "Black"; Gender: male(1), female (2); Age: 1 = "20 – 29 years old", 2 = "30-49 years old", 3 = "40-49 years old", 4 = "50 - 59 years old", 5 = 60 years and above; Ethnicity: 1= White, 2 = Hispanic, 3 = Black, 4 = Native American, 5 = Asian, 6 = others; Education: 1 = "High school graduate, 2 = "Some college degree", 3 = "College Degree", 4 = "Bachelors Degree", 5 = "Master's Degree", 6 = "PhD", 7 = "Other advanced Degree; Currently employed: 1 = "Yes", 2 = "No"; Organizational tenure: 0 = "0 Years", 1 = "0 -5 years", 2 = "6 -10 years" to 3 = "more than 10 years"; Time spent outside: 1 = "Never", 2 = "Less than 6 months", 3 = "7 - 13 months", 4 = "14 -20 months", 5 = "21 - 27 months", 6 = "Above 27 months"; Purpose of stay: 0 = "Never stayed abroad", 1 = "Work reasons", 2 = "Personal reasons"*

We tested the main effects of the irrelevant information on subjects' perception of similarity with the leader using independent t-tests (see Table 1.2). In Hypothesis 1a, we hypothesized that subject's perception of the targets similarity with the leader will be influenced by the existence of irrelevant information. According to the dilution effect, irrelevant information will reduce target similarity with the outcome whereas the enhancement effect implicates that irrelevant information enhances the similarity. T-test results provides evidence for the enhancement effect. Subjects' leadership perceptions of the target increased when irrelevant information was available; $M_{Diag} = 3.55$, $SD_{Diag} = 0.78$ and $M_{Dil} = 3.70$, $SD_{Dil} = 0.71$, $t(456) = -2.199$, $p < 0.05$. In Hypothesis 1b, we proposed that subjects' perception of satisfaction with the leader will be influenced by irrelevant information. Again, the results of our t-test supported the enhancement effect; $M_{Diag} = 3.83$, $SD_{Diag} = 0.85$ and $M_{Dil} = 4.1$, $SD_{Dil} = 0.726$, $t(456) = -3.069$, $p < 0.05$. To test our hypotheses 2a and 2b (moderation effects), we conducted two separate multiple regression analysis for dependent variables percieved similarity with the leader and perceived satisfaction with the leader. In table 1.3, we report results of the three steps for each dependent variable with step 1 including all of the control variables, step 2 including all of the direct predictors (hypothesized direct effects and controls), and step 3adding the two hypothesized moderation terms to the model.

Table 1.2: Study 1: Summary of T-Tests for Mean Group Differences

	Diagnostic (Control)		Diagnostic. Non-Diagnostic (Treatment)		t(*df*)	*p*-value	Mean D	Mean Differences (95% CI)	
	M	SD	M	SD				Lower	Upper
Main Variables									
Similarity with the Leader	3.55	0.78	3.71	0.726	2.199(456)	$p < 0.05$	0.154	0.01646	0.29261
Satisfaction with the Leader	3.83	0.85	4.1	0.726	3.069(456)	$p < 0.05$	0.227	0.08164	0.37236

Table 1.3: Study 1: Results of the Regression Analysis

	Step1: Satisfaction with the Leader			**Step2: Satisfaction with the Leader**			**Step3: Satisfaction with the Leader**			**Step1: Similarity with the Leader**			**Step2: Similarity with the Leader**			**Step3: Similarity with the Leader**		
Predictors	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*
(Intercept)	3.46	0.18	<0.001	3.35	0.19	<0.001	3.43	0.2	<0.001	3.18	0.26	<0.001	3	0.28	<0.001	3.12	0.29	<0.001
Gender	0.08	0.05	0.112	0.07	0.05	0.154	0.07	0.05	0.15	0.21	0.07	0.004	0.2	0.07	0.007	0.2	0.07	0.007
Age	0.02	0.04	0.67	0.02	0.04	0.621	0.02	0.04	0.622	-0.09	0.05	0.101	-0.08	0.05	0.114	-0.08	0.05	0.113
Ethnicity	0.03	0.02	0.194	0.03	0.02	0.252	0.03	0.02	0.241	0.04	0.03	0.233	0.04	0.03	0.303	0.04	0.03	0.291
Need for cognition	0.07	0.03	0.025	0.06	0.03	0.059	0.06	0.03	0.052	0.18	0.05	0.001	0.17	0.05	<0.001	0.17	0.05	<0.001
Need for Closure	0.07	0.03	0.024	0.07	0.03	0.019	0.07	0.03	0.016	0.01	0.04	0.736	0.02	0.04	0.649	0.02	0.04	0.6
Time Spent Outside	-0.02	0.02	0.406	-0.02	0.02	0.4	-0.02	0.02	0.415	-0.01	0.03	0.642	-0.01	0.03	0.636	-0.01	0.03	0.656
Purpose of Stay	-0.02	0.03	0.463	-0.03	0.03	0.418	-0.03	0.03	0.416	-0.02	0.04	0.605	-0.03	0.04	0.543	-0.03	0.04	0.541
Diagnostic and Non.Diagnostic				0.12	0.05	0.022	-0.07	0.16	0.655				0.19	0.07	0.009	-0.09	0.23	0.713
Race				0.06	0.05	0.238	0	0.07	0.956				0.1	0.07	0.195	0	0.11	0.996
Diagnostic.Non-Diagnostic * Race							0.13	0.1	0.215							0.18	0.15	0.204
Observations	458			458			458			458			458			458		
R^2 / R^2 adjusted	0.035 / 0.020			0.050 / 0.031			0.053 / 0.032			0.061 / 0.046			0.079 / 0.060			0.082 / 0.062		

In hypothesis 2a and 2b, we expected race of the target to moderate the association between irrelevant information and subjects' perception of similarity(a) and satisfaction(b) with the leader. The hypothesized interaction was not significant for both perception of similarity (H2a: beta = 0.12, $p = 0.253$) and satisfaction with the leader (H2b: beta = 0.17, $p = 0.241$), thus hypothesis 2a and 2b could not be supported.

1.4 STUDY 2

In this study, we examined the influence of irrelevant information on leadership perceptions in the context of good (average) performing leaders.

1.4.1 Method

1.4.1.1 Sample

The participants were recruited from Amazon Mechanical Turk. We excluded several participants as they did not satisfy our requirements. After the exclusion of 60 individuals who failed to fulfill our requirements, of the final sample size amounted to 441 individuals: 234 (53.01 %) male and 207 (46.9 %) female. The mean age of the respondents of our study was 38.19 years. Of these participants, 362 (79%) were white, 23 (4.8%) were Hispanic, 46 (10.0%) were African American, 5 (1.1%) were Native American, 19 (4.1%) were Asian, and 4 (0.9%) did not indicate their race. More than 86 percent of the participants reported that they were currently employed.

1.4.2 Procedure

The procedure used in this study is identical in every respect to Study 1 except few changes i.e. Instead of race, we added performance (good or average) to the diagnostic information. We used 2 (Performance: Good vs Bad) x 2 (Information: Diagnostic vs Non-diagnostic) design. A sample of the information pertaining to good performance condition was:

"*overall this person got **good reviews** in his last year's performance evaluation, with him ranking among the **top 25%** of leaders in the company"*. To reduce the complexity, we used a vignette of white male manager. No other changes were made in the design.

1.4.3 Attention check

Randomized assignment to one of the two conditions was made. After providing their response to leadership questionnaire, participants were asked about whether they received a lot of information (Dilution condition) and whether their leader performance was good or average. A sample item pertaining to dilution manipulation includes e.g. My leader lives in the suburbs of the big city. Similarly, item pertaining to performance check was e.g., the last year's performance review ranked him among the top 25% leaders (1= Yes, 2=No, 3= I don't remember).

1.4.4 Measures

The dependent variables in Study 2 captured participants perceptions of leadership on effectiveness and satisfaction. In addition, we used performance as moderating variable and several control variables.

Satisfaction with the leader. We used the 2-items scale from to measure subject's perceptions of satisfaction with the leader (Bass et al., 1975). A sample item for this scale is "I am satisfied with the leadership style of my leader".

Leadership effectiveness. We used 4 -items for measuring leadership effectiveness which were adopted from (Rosette & Livingston, 2012). A sample item for this scale included "I think that John is an effective leader".

Control Variables. Like Study 1, we considered same control variables except a different scale for need for cognition ($\alpha = 0.95$) (adopted from Cacioppo, et al., 1996) as short

version employed in study 1 had low Cronbach alpha value i.e., $\alpha = 0.51$. Inclusion of these control variables in hypothesis testing was determined after observing bivariate correlation between them and both the core independent and dependent variables of the model tested, to account for possible confounding effects.

1.4.5 Results

1.4.5.1 Attention Checks

We tested the effectiveness of our attention checks by using independent t-test. Rating was significantly higher with respect to the manipulation in each condition i.e. ($M_{Diag} = 2.27$, $SD_{Diag} = 0.428$ and $M_{Dil} = 1.78$, $SD_{Dil} = 0.304$, $t\ (439) = 13.64$, $P < .001$) indicating that our manipulation was effective. Similarly, we found significant differences for our performance manipulation i.e. ($M_{Good} = 1.06$, $SD_{Good} = 0.350$ and $M_{Average} = 2.02$, $SD_{Average} = 0.134$, $t\ (439) = -37.71$, $P < .001$)

1.4.5.2 Main results

Table 1.4 displays means, standard deviations, and zero order correlations for the main variables.

Table 1.4: Study 2: Descriptive Statistics and Correlations among study variables

	Items	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Diagnostic (0). Non Diagnostic (1)	1	0.5	0.5															
Good (0).Average (1) Performance	1	0.5	0.5	0.07														
Satisfaction with the leader	2	4.17	0.75	0.09	-0.11*	(0.88)												
Leadership effectiveness	4	4.18	0.77	0.10*	-0.19***	0.88***	(0.93)											
Need for cognition	18	3.44	0.87	0.07	0	0	-0.01	(0.95)										
Task Leadership	4	4.4	3.44	0.09	-0.03	0.60***	0.63***	0.12*	(0.8)									
Relation Leadership	4	3.96	0.58	0.07	-0.06	0.65***	0.61***	0.09	0.53***	(0.74)								
Gender	1	1.47	0.5	-0.01	-0.03	0.05	0.09	-0.13**	0.07	-0.02								
Age	1	2.37	1.15	0.05	-0.06	0.03	0.06	0.01	0.10*	-0.08	0.12*							
Ethnicity	1	1.41	0.89	-0.03	0	0.04	0.05	-0.03	0.04	0.13**	-0.03	-0.22***						
Education	1	3.41	1.31	-0.03	-0.09	-0.10*	-0.12*	0.05	0.03	-0.09	0.06	0.06	0.11*					
Currently employed	1	0.14	0.34	0.01	0.08	0.02	0.07	-0.16***	0.06	-0.03	0.13**	0.08	-0.07	-0.08				
Organizational tenure	1	2.84	1.3	-0.01	0	0	-0.02	0.14**	0.06	0.04	-0.08	0.21***	-0.04	0.10*	-0.51***			
Time spent outside	1	1.9	1.37	-0.02	-0.05	-0.09	-0.06	0.05	-0.03	-0.02	-0.02	0.10*	0.16**	0.22***	0.01	0.01		
Purpose of stay	1	0.85	0.93	0	-0.02	-0.05	-0.03	0.10*	-0.01	0.01	-0.04	-0.05	0.16***	0.25***	0.01	-0.05	0.55***	

Computed correlation used Pearson-method with listwise-deletion.

*Notes. N = 441 * p < 0.05, ** p < 0.01, *** p < 0.001; α = (values in parenthesis represents Cronbach's alpha); Diagnostic. Non Diagnostic: 0 = "Diagnostic", 1 = "Diagnostic and Non.Diagnostic"; Good or Average performance: 0 = "Good", 1 = "Average"; Gender: male(1), female (2); Age: 1 = "20 – 29 years old", 2 = "30-49 years old", 3 = "40-49 years old", 4 = "50 - 59 years old", 5 = 60 years and above; Ethnicity: 1= White, 2 = Hispanic, 3 = Black, 4 = Native American, 5 = Asian, 6 = others; Education: 1 = "High school graduate, 2 = "Some college degree", 3 = "College Degree", 4 = "Bachelors Degree", 5 = "Master's Degree", 6 = "PhD", 7 = "Other advanced Degree; Currently employed: 1 = "Yes", 2 = "No"; Organizational tenure: 0 = "0 Years", 1 = "0 -5 years", 2 = "6 -10 years" to 3 = "more than 10 years"; Time spent outside: 1 = "Never", 2 = "Less than 6 months", 3 = "7 - 13 months", 4 = "14 -20 months", 5 = "21 - 27 months", 6 = "Above 27 months"; Purpose of stay: 0 = "Never stayed abroad", 1 = "Work reasons", 2 = "Personal reasons"*

We tested the main effects of the irrelevant information on subjects' perception of effectiveness with the leader using independent t-tests (see Table 1.5). In Hypothesis 1c, we assumed that subject's perception of the leader's effectiveness will be influenced by the existence of irrelevant information. Akin to study 1, T-test results support an enhancement effect (M_{Diag} = 4.10, SD_{Diag} = 0.84 and M_{Dil} = 4.25, SD_{Dil} = 0.69, t (439) = -2.036, $p < 0.05$). Subjects significantly enhanced (rather than reduced as argued by the dilution effect) perceptions of the target with respect to the leader's effectiveness when irrelevant information was available as opposed to when it was not available. In Hypothesis 2, we proposed that subjects' perception of satisfaction with the leader will be influenced by irrelevant information. We tested this hypothesis again in this study. The results of our t-test supported this hypothesis with 10 percent confidence in the direction of an enhancement effect i.e., M_{Diag} = 4.11, SD_{Diag} = 0.79 and M_{Dil} = 4.24, SD_{Dil} = 0.71, t (439) = -1.803, $p < 0.10$. To test hypotheses 3a and 3b involving moderation effects, we conducted two separate multiple regression analysis for dependent variables percieved leadership effectiveness and perceived satisfaction with the leader. In table 1.6, we report two steps for each dependent variable with step 1 including all of the direct predictors (hypothesized direct effects and controls) and step 2 adding the two hypothesized moderation terms to the model.

Table 1.5: Study 2: Summary of T-Tests for Mean Group Differences

	Diagnostic (Control)		Diagnostic. Non-Diagnostic (Treatment)		t(*df*)	*p*-value	Mean D	Mean Differences (95% CI)	
	M	SD	M	SD				Lower	Upper
Main Variables in Study 2									
Satisfaction with the Leader	4.11	0.79	4.24	0.71	1.803(439)	$p < 0.10$	0.128	-0.01156	0.26849
Leadership Effectiveness	4.10	0.84	4.25	0.69	2.036(439)	$p < 0.05$	0.148	0.00518	0.29253

Table 1.6: Study 2: Results of the Regression Analysis

	Step1: Satisfaction with the Leader			**Step2: Satisfaction with the Leader**			**Step3: Satisfaction with the Leader**			**Step1: Leadership Effectiveness**			**Step2: Leadership Effectiveness**			**Step3: Leadership Effectiveness**		
Predictors	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*
(Intercept)	3.98	0.22	*<0.001*	4.04	0.22	*<0.001*	4.08	0.22	*<0.001*	3.86	0.22	*<0.001*	3.99	0.22	*<0.001*	4.03	0.23	*<0.001*
Gender	0.07	0.07	0.314	0.07	0.07	0.34	0.07	0.07	0.347	0.12	0.07	0.107	0.11	0.07	0.123	0.11	0.07	0.127
Age	0.03	0.03	0.323	0.02	0.03	0.446	0.02	0.03	0.46	0.05	0.03	0.133	0.04	0.03	0.231	0.04	0.03	0.242
Ethnicity	0.06	0.04	0.165	0.06	0.04	0.162	0.06	0.04	0.145	0.07	0.04	0.102	0.07	0.04	0.098	0.07	0.04	0.085
Need for cognition	0.01	0.04	0.772	0.01	0.04	0.863	0.01	0.04	0.89	0	0.04	0.979	0	0.04	0.908	-0.01	0.04	0.879
Time spent outside	-0.06	0.03	0.082	-0.06	0.03	0.073	-0.06	0.03	0.077	-0.1	0.03	0.143	-0.1	0.03	0.111	-0.05	0.03	0.118
Purpose of stay	0	0.05	0.922	-0.01	0.05	0.912	-0.01	0.05	0.896	0.01	0.05	0.861	0.01	0.05	0.862	0.01	0.05	0.881
Diagnostic & Non.Diagnostic				0.14	0.07	0.05	0.07	0.1	0.487				0.17	0.07	0.021	0.09	0.1	0.381
GoodorAverage Performance				-0.18	0.07	0.01	-0.25	0.1	0.013				-0.3	0.07	<0.001	-0.38	0.1	<0.001
Diagnostic & Non.Diagnostic *GoodorAverage							0.14	0.14	0.335							0.16	0.14	0.275
Observations	441			441			441			441			441			441		
R^2 / R^2 adjusted	0.016 / 0.003			0.038 / 0.020			0.040 / 0.020			0.020 / 0.006			0.066 / 0.049			0.069 / 0.049		

In hypothesis 3a and 3b, we expected performance to moderate the association between irrelevant information and subjects' perception of leadership effectiveness(3a) and satisfaction(3b) with the leader. The hypothesized interaction was not significant for both perception of leadership effectiveness (H3a: b = 0.14, $p = 0.341$) and satisfaction with the leader (H3b: b = 0.12, $p = 0.41$), thus hypothesis 3a and 3b could not be supported.

1.5 GENERAL DISCUSSION

The goal of study 1 was to examine the effect of irrelevant information on subjects' perceptions of leadership similarity and satisfaction. To this aim, we compared subjects' ratings in scenario where only relevant information was presented with the one which included irrelevant information as well. Our findings show that while making judgments on leadership perceptions, subjects' ratings are enhanced in response to the presence of irrelevant information rather than diluted and this effect was stronger for black as compared to white individuals.

Similarly, study 2 examined the influence of irrelevant information on subjects' perceptions of leadership effectiveness and satisfaction. To achieve this, we compared subjects' ratings in scenario where only relevant information was presented with the one which included irrelevant information as well under varying performance i.e., good, and average. The results showed that irrelevant information positively influences (enhanced rather than diluted) the subject's perception of the target measured across leadership effectiveness and satisfaction and this effect was more nuanced in average performance condition than good performance.

The results of Study 1 and Study 2 consistently show an enhancement effect, such that irrelevant information increases the judgment extremity rather than reducing it. Nisbett et al., (1981) in their experiments also found enhancement effect and contend that "people may be more prepared to find the good and mundane mixed together in the same person than to believe that the evil and mundane coexist" (p. 272). Thenceforth, the irrelevant information may reduce

the similarities between stereotypes and outgroup members more than they reduce the similarity between stereotypes and ingroup members.

1.5.1 Practical implications

One of the fundamental implications of the present research indicates that organizations should be careful about leadership assessment procedures since suboptimal standards such irrelevant information may influence the rater's assessment. The results of this study reveal that leadership perceptions are also prone to suboptimal standards of decision making i.e., these perceptions are influenced by the presence of irrelevant information. Although, over moderation hypothesis didn't infer significant results, we observed a positive inclination of subjects (treatment group) ratings towards minority groups who are generally at disadvantage due to several social stereotypes. This inclination, although favors minority groups, nevertheless represents the violation of normative judgment standards.

1.5.2 Limitations and future directions

We acknowledge that the present studies have some limitations. First, given we used survey experiments wherein we tried to keep the scenarios as realistic as possible, results may differ when repeating the experiments in real organization. Hence, future studies should examine the influence of irrelevant information in field experiments to better understand the underlying mechanisms. Second, the results of our study demonstrated the enhancement effect rather than the dilution effect. This could be because irrelevant information might have some minimal diagnostic value for subjects. Our diagnostic leadership description included both task and relationship-oriented behaviors of leader. These descriptions entail complex mechanisms which compensate each other for assessing leaders e.g. our nondiagnostic items were more in the direction of making leader appear as relation oriented i.e. items such as "he is married for 12 years", and "he likes to eat out with his wife" may have drawn positive impression thereby signalling that person is very caring, friendly, gives time to family (attributes which are seen

common for relationship oriented styles of leaders). Given our design had diagnostic items (explaining both task and relationship-oriented behaviors of individual) therefore, the average effect of irrelevant information taken in conjunction with relevant information was enhancement not dilution. Thenceforth, future studies should disentangle the specific leadership behaviors distinctly and devise neutral irrelevant information.

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1.7 Appendix – Essay 1

Description of leader containing Diagnostic and non-diagnostic information used in Study 1

Diagnostic information. Mr. Greg Thompson is your direct leader in this medium-sized company you are working for. There will be a transition to a new software in the firm. With the help of this software the record of client data within the company database should be improved. Mr. Greg Thompson as a leader in this context begins his day at his office desk where he reviews his daily work calendar. This calendar includes his to-do lists, goals and all the meetings and work responsibilities that must be accomplished before he leaves at the end of day. All employees can collaborate their activities by accessing their manager's daily task list. Being a goal-driven person, Mr. Greg Thompson believes that reaching his daily goals gives positive expressions of his personality…..

Non-Diagnostic information. He lives in the suburbs of a big city. Sometimes, he switches between car and train to get to work. When he drives, he likes listening to the radio. He prefers working with his notebook because he can easily carry it. Mr. Greg Thompson has one brother and one sister. His parents were both employed and are enjoying their retirement life. During his studies, he had several jobs. Mr. Greg Thompson has been married for 12 years. He likes to eat out with his wife. His favorite dish is Lasagna. With his family, he goes on vacation two time a year. In his leisure time, Mr. Greg Thompson likes to do sports.

Description of leader containing Diagnostic and non-diagnostic information used in Study 2

Diagnostic information. Mr. John Thompson is your direct leader in this medium-sized company you are working for. He exceeds all expectations in his role as a manager. He has a positive attitude and adapts easily to rapid changes in the workplace. Furthermore, he works well under pressure. Given this, overall, he got Good/**bad reviews** in his last year's performance evaluation, with him ranking among the **top/bottom 25%** of leaders in the company. There will be a transition to new software in the firm. With the help of this software, the record of client data within the company database should be improved. Mr. John Thompson as a leader in this context begins his day at his office desk where he reviews his daily work calendar. This calendar includes his to-do lists, goals and all the meetings and work responsibilities that must be accomplished before he leaves at the end of the day. All employees can collaborate with their

activities by accessing their manager's daily task list. Being a goal-driven person, Mr. John Thompson believes that setting and reaching goals on a daily basis is important for a productive and positive work environment…..

Non-Diagnostic information. As above

Essay 2

2. How relevant is irrelevant information? The effect of non-diagnostic information on leadership perceptions

Abstract

Previous studies have provided conflicting evidence of whether irrelevant information can influence the processing of relevant information in behavioral judgments. Under the notion of the dilution effect, Nisbett, Zukier and Lemley (1981) suggest that non-diagnostic (irrelevant) information influences individuals' judgements such that it brings them to the mid-point of a scale. By using dilution effect mechanisms of irrelevant information from social psychology, we examine whether irrelevant information makes leadership perception ratings less extreme or not. We test our hypotheses in an experimental study with 406 participants in a 2 (positive vs. negative leadership attributes) × 2 (only relevant vs. relevant and irrelevant information) between-subjects design. Results of the present study demonstrate that the effect of irrelevant information was dependent on the context (positive or negative leadership attributes) in which baseline leadership behavioral information cues were administered: irrelevant information influenced leadership perceptions in such a way that the leadership perception ratings were drawn towards average. That is, leadership perception ratings of targets with positive behaviors information were reduced whereas leadership perception ratings of targets with negative behavior information were increased. These findings extend classical dilution results to the leadership context and have consequences for information processing mechanisms of leadership perceptions.

Keyword: Leadership perceptions, prototypes, dilution effect.

2.1 Introduction

Research shows that leadership effectiveness does not only rely on leaders' behaviors and actions but also on how employees perceive their behaviors (Paustian et al., 2014; Hsieh & Wang, 2015). Utilizing basic categorization theory concepts (Rosch & Llyod, 1978), ensuing studies have provided empirical evidence on how followers perceive leader behaviors under the notion of leadership categorization theory (Lord et al., 1984; Rosette et al., 2008). According to leadership categorization theory, evaluators compare a target person's features with preexisting cognitive prototypes about leadership characteristics such that the greater the similarity between target's features and leadership prototypes held by evaluators the greater the perception that the target entails leadership behaviors. This comparison between target's features and leadership prototypes is described as recognition-based process that has been shown to influence leadership perceptions of evaluators (Lord & Maher, 1991). Although judgments based on prototypicality serve as a quick mental reference to organize and process information (Rosch & Llyod, 1978), studies have largely shown that they are often biased due to positive or negative stereotypes existing for each category (Pittinsky, et al., 2006). For instance, Eagly and Karau (2002) demonstrated that male leadership prototypes in an organization lead to bias in favor of male leaders.

Potential bias of prototypicality associated with followers' perceptions of leader behaviors has been shown to underestimate the evaluation of individuals' attributes for leadership positions (Merritt & Lynch, 2020; Rosette et al., 2008; Gündemir et al., 2014). Pertaining to its wrecking effect of dampening fair leadership evaluation of groups which are not perceived as prototypical, it has become an important research avenue for scholars to disentangle the precursors involved in follower's evaluation of leaders. Former studies within this research tradition have demonstrated that people use leadership prototypes (Johnson et al., 2008; Festekjian et al., 2014) and other stereotypical information such as gender, culture, and

race (Merritt & Lynch, 2020; Rosette et al., 2008; Johnson et al., 2008), for example, to frame the information they gather about a specific target person. Little research, however, has examined whether leadership perceptions can also be influenced by other neutral cues such as person's hobbies, favorite food, color of eye, and so forth. A rigorous rationale of leadership assessment would normally involve predictions based on evidence relevant to subject matter (leadership assessment in our case) such as trainings, experience and learnings, qualification performance and so forth (Powell & Yalcin, 2010; Cole et al., 2007). However, in practice, raters are usually exposed to additional pieces of information. Take for example a typical resume which not only includes professional and educational credentials but also include less relevant information (e.g., hobbies; Brown et al., 2004, Hutchinson, 1984). Normatively, such cues would hold zero or little weight in characterizing someone as a leader. Examining the potential influence of such irrelevant cues on leadership perception will extend the social categorization theory's analysis of leadership which has largely centered around well-known knowledge structures with irrelevant cues such as gender, race or culture that might influence leadership perception in the processing of social information.

Research on dilution effect stands out as an interesting starting point that could help understand the potential effect of irrelevant individualized information on leadership perceptions. Dilution effect examines how the addition of non-diagnostic information (irrelevant to the judgement task) about the target to the diagnostic information (relevant to the judgement task) affects the judgement of targets on a certain outcome (Nisbett et al., 1981; 82). Nisbett et al. (1981) argued that such judgements rely on the representativeness heuristic in which subjects give higher ratings to the target whose features are highly representative of the outcome. For example, a stereotype of a successful student is activated by diagnostic information (e.g., he/she studies 40hrs a week). When irrelevant information (e.g., he/she is tall,

has blue eyes) is added, the target may no longer appear to be representative of the outcome group (successful student) thereby resulting in less stereotyped and less extreme judgment.

In this manuscript, we introduce dilution effects as an extension to leadership categorization and implicit leadership theories (ILTs). While research on ILTs made substantial progress within the last decades, most research efforts on leadership perceptions and leadership categorization focused on topics such as measurement issues, ILT antecedents, and ILT outcomes (for a recent overview, see Lord et al., 2020). However, the individuating effect of the kind of information (e.g., amount and relevance) has mostly been overlooked. We believe that this research gap could be addressed by examining the influence of irrelevant information on leadership assessment because it reduces a target person's similarity with leadership prototypes. Accordingly, we aim to fill this research gap in the leadership literature by looking at the interplay between leadership perceptions of individuals that are described with positive or negative attributes and the potential influence of irrelevant information on these perceptions. Dilution effect would suggest that additional irrelevant pieces of information will make the leadership perception ratings less extreme. Based on this, we propose that irrelevant information will reduce subject's predictions of leadership behaviors and outcomes for targets described with positive leadership attributes information whereas it will increase subjects' predictions of leadership behaviors and outcomes for targets described with negative leadership behavior information, ultimately drawing the ratings of each group towards average.

On the basis of representativeness heuristic mechanisms explained via the dilution effect, our paper examines whether irrelevant information reduces the influence of general prototypes associated with positive and negative leadership attributes in leadership perceptions. While doing so, we begin with a brief review of prior research on leadership perception and dilution effect. Subsequently, we develop our hypotheses and present an experiment that we conducted to test our hypotheses. Our experiment involves a 2 (positive vs. negative leadership

attributes) × 2 (only relevant vs. relevant and irrelevant information) between- subjects design. More specifically, we focus on the combined effect of irrelevant information and leaders' attributes (positive vs negative) on the perceptions of leadership behaviors (task and relationship-oriented leadership) and leadership outcomes (satisfaction with the leader and leadership effectiveness). We propose that irrelevant information draws leadership ratings towards average for both groups, i.e., leaders described with positive attributes and leaders described with negative attributes. We conclude our study by discussing the results, future research and implications considering the effect of irrelevant information in judgements related to categorical leadership perceptions.

2.2 Theory and Hypotheses

2.2.1 Leadership perceptions

Individual perception refers to the process by which people interpret and make sense of complex information to produce a meaningful explanation of experiences in a society (Lindsay & Norman, 1977). The interpretation of cues generally relies on prior experiences stored in individuals' cognitive structures. Studies show that people use normative strategies to interpret complex information such that they rely on information they believe to be relevant while setting aside irrelevant information (Cole et al., 2007; Bycio et al., 1995). However, in practice, individuals have been shown to violate normative decision-making standards by relying on suboptimal strategies demanding less cognitive effort such as heuristics and/or irrelevant information (Kahneman & Tversky, 1973), prototypes or stereotypes (Merritt & Lynch, 2020; Lord et al., 2020). Leadership perceptions are no exception in the sense that people make judgements about leaders through the lens of certain prototypes of leadership attributes which they develop over time through experiences and social interactions (Lord et al., 1984; Mariappandar, 2018; Lord et al., 2020).

Categorization theory of leadership provides an empirical framework of strategies involved in leadership evaluations (Lord et al., 2003; Nye & Forsyth, 1991; Lord et al., 1984; Lord et al., 2020). This theory argues that individuals are evaluated as more effective leaders if they entail characteristics of prototypical leaders. Leadership prototypes are mental representations of leader characteristics which serve as a reference point to evaluate leaders (Johnson et al., 2008). A wealth of empirical evidence demonstrates that individuals' perceptions based on prototypes influence how they perceive leadership behaviors (Hogg et al., 2006; Nye and Forsyth, 1991) and leadership outcomes (Cicero et al., 2007; Rosette et al., 2008; Paustian-Underdahl, 2014; Shondrick & Lord 2010; Erkutlu, 2008). For instance, Hogg et al. (2006) examined the leadership perceptions of male and female leaders as a function of whether group prototypes favor masculine (instrumentality) or feminine (expressive) leadership qualities and behaviors. They found that subjects subscribed to groups with male (female) norms endorsed male (female) leaders more strongly. Judith and Donelson (1991) also demonstrated that subjects hold preconceived beliefs about the features and behaviors of effective leaders such that subjects who believe effective leaders are warm and friendly rated relationship-oriented leaders more positively than leader' with agentic attributes, e.g., task-oriented leaders. Likewise, subjects holding communal (relationship-oriented) prototypes for female leaders regard less favorable ratings to women exhibiting agentic (task-oriented) behaviors (Rosette et al., 2010).

Also, seminal research studies have shown that followers are more satisfied with prototypical leaders (Epitropaki and Robin, 2005; Chong & Thomas, 1997; Leroy et al., 2015). For instance, in their longitudinal study, Epitropaki and Robin (2005) demonstrated the effect of leadership prototypes on employee satisfaction mediated by leader memeber exchange. Similarly, subjects' perceived leadership effectiveness for prototypical leaders has been shown to be higher than non-prototypical leaders (Rosette et al., 2008; Giessner & van Knippenberg,

2008). For instance, Rosette et al. (2008), in a compelling series of studies, showed that white individuals were perceived as more prototypical leaders than non-whites and that these perceptions influenced leadership effectiveness evaluations.

Although social categorization theory provides an astute understanding of how prototypes influence leadership perceptions, it barely takes into account the potential influence of irrelevant neutral information that might also impact individual's mental schemas of leaders. More specifically, like stereotypes, prototypes of category members (e.g., leaders vs non-leaders) are automatically activated when perceivers encounter information showing similarities between the stimulus and the members of a category. However, any irrelevant information that does not frame similarity between the stimulus and the leadership category can disassociate the similarity of the target from the leadership category. This irrelevant information may include, for instance, hobbies, favorite food, favorite sport, hair, or eye color and so forth which is commonly encountered by raters in practice. For instance, raters often encode information (e.g., belonging to upper or lower class, hobbies) that are less relevant to leadership (Pfeffer, 1977; Hansbrough et al., 2015). Though, the effect of irrelevant information, explained further in next section, has been shown to influence human judgements in social psychology (Nisbett et al., 1981; Meyvis & Janiszewski, 2002), it has rarely been examined in leadership settings.

2.2.2 Dilution effect

Scholars from cognitive psychology argue that individuals' decision making usually involves confrontation with an overwhelming array of stimulus information, most of it is irrelevant to their judgement. Normatively while interpreting cues, to best of their capacity, people tend to rely on relevant pieces of information whilst ignoring irrelevant cues (Bandura, 1973; Fan et al, 2002; Riedl et al, 2008). However, in a compelling series of studies, Nisbett et al. (1981) and Kahneman & Tversky (1973) have shown that individuals usually rely on

representativeness heuristics which often leads them to make more regressive predictions when confronted with both irrelevant information and relevant information. Dilution effect basically refers to the tendency of irrelevant information to dilute the extremity of predictions that individuals make when confronted only with relevant information (Troutman & Shanteau, 1977). Studies have shown that people usually prefer simple, easy to execute heuristic strategies to make sense of their surrounding which often render them to erroneous judgments (Kahneman & Tversky 1973; Fiske & Taylor, 1984). These studies delineate that information relevance is contingent upon its representativeness to the outcome, i.e., if information is highly representative of the outcome it is considered as relevant whereas if it's not representative of the outcome it's considered as irrelevant. Therefore, an addition of relevant information should increase the similarity with the outcome whereas irrelevant information should reduce it (Kahneman & Tversky, 1973). By invoking the representativeness heuristic, Nisbett and his colleagues (1981) argue that people judge other individuals by comparing their attributes to the key features of the outcome. According to Tversky (1977), similarity between the individual features and the outcome is a positive function of the number of common features and a negative function of the number of unique features. Common features of individuals are the ones that are frequently associated with the outcome. For example, in an instance of choosing whether the target is an engineer or a lawyer, an image of a target who shows no interest in politics but spends most of his or her time in solving mathematical puzzles is strongly associated with the outcome that this person is an engineer. Noncommon features such as eye color or height are characteristics of individuals that are barely associated with the outcome. Thus, people reduce the similarity and the perceived predictive link between the target and engineer when irrelevant information cues are added to target's description (Nisbett et al., 1981; Meyvis & Janiszewski, 2002).

Numerous studies in the field of psychology have validated the robustness of the dilution effect across various domains and contexts (Peters & Rothbart, 2000; Meyvis, T., &

Janiszewski, C. 2002; Waller & Zimbelman 2003). For instance, research has acknowledged that irrelevant information reduces the quality of accountants' auditing judgments (Glover, 1997; Hackenbrack, 1992; Hoffman & Patton, 1997; Waller & Zimbelman, 2003), product decisions on the part of consumers (Meyvis & Janiszewski, 2002), and judicial decision making (Fein, McCloskey, & Tomlinson, 1997; Chinander & Schweitzer, 2003). To the best of our knowledge, the relevance of dilution effect in the leadership context has not been studied thereby making this a first study to explore this relationship.

2.2.3 Leadership perceptions and the dilution effect

As argued above, perceptions of leadership behaviors and outcomes are greatly shaped by whether a leader's features match with the leadership prototypes held by followers, i.e., the greater the match, the greater the perception that the leader exhibits qualities that are common to leadership categories (van Knippenberg, 2011; Shondrick & Lord, 2010; 2005; Foti et al., 2017). Augmenting representativeness heuristic explanations of individuals' decision making (Tversky, 1977), leadership prototypical perceptions can be seen as systematic cognitive assessments of similarity between leadership prototypes and features of the target. That is, the greater the similarity between the two, the greater the confidence that the target belongs to the outcome category. This implies that similarity is a positive function of attributes that are common to both target and leader prototypes and negative function of features non-common to target and leader prototypes (Tversky, 1977). Considering the information processing mechanisms of dilution effect, in the following, we first derive hypotheses on leadership behaviors and then on leadership outcomes.

2.2.3.1 Leadership behaviors

In the leadership context, research shows that behaviors associated with task-oriented leadership and relationship-oriented leadership constitute a substantial proportion of day-to-day leadership, especially at a supervisory level (Komaki et al., 1986). Individual components that

make up the perception of these behaviors can be acknowledged as either positive or negative in nature. For instance, GLOBE studies found universally positive (negative) leadership attributes that lead to (impede) effective leadership (House et al., 1999; Javidan et al., 2006). The distinct composite of these characteristics makes up task-oriented and relationship-oriented leadership behaviors (Yukl, 2012; DeRue et al., 2011). For instance, encouraging confidence has been integrated with perceptions of relationship-oriented leadership behaviors whereas clarifying tasks with task-oriented leadership behaviors (Yukl, 2012; Behrendt et al., 2017). On the contrary, negative behaviors such as abusive supervision, inconsistent instructions and being vengeful have been shown to be detrimental to leadership perceptions and success (Schyns & Schilling, 2013; Tepper, 2007). Describing leaders with these attributes (positive or negative) influences how they are rated as task or relationship-oriented leaders.

Although above leadership studies provide a strong theoretical framework of precursors that affect followers' leadership evaluations and behavioral perceptions, they largely ignore the potential influence of irrelevant information on leadership perceptions (information that potentially has zero weight in a leadership judgment task) i.e., information that can neither be linked to task-oriented nor to relationship-oriented leadership behaviors.

Because people are normally confronted with both relevant and irrelevant information cues in realm, disentangling the potential influence of irrelevant information suggests an important research avenue. Tversky (1977) argued that if similarity is positive function of features common to both target and category (leadership prototypes in our case) and a negative function of noncommon features, the addition of noncommon features will reduce the similarity. For instance, information such as this individual prefers planning things head could be easily associated with a task-oriented leadership. Here planning ahead is a feature that is common to both target and leadership category (task-oriented leadership). However, information that a person prefers planning ahead and has blue eyes is somewhat less easily associated with a task-oriented leadership because having blue eyes hold zero weight in judging

whether someone is a task-oriented leader or not. The addition of this non-common irrelevant information lessens the association of target with task-oriented leadership category. More specifically, even in the presence of information that helps to rate the degree to which certain individual is task oriented, irrelevant information will draw the ratings more towards average.

Thus, if people base their judgements on similarity between leader attributes and leadership prototypes, and if non-common irrelevant information serves to lessen this similarity, then ratings should become less extreme when additional irrelevant information is available. Taking representativeness heuristics account of dilution effect, we postulate that irrelevant information about a target will reduce the perceived similarity of target with leadership prototypes. Research on dilution effect focused on relevant information which, though not of stereotypic nature in itself, exhibited some characteristics of negative stereotypes, or at least positive target features have never been made salient. Therefore, the possibility that irrelevant information has different effects on different information types such as positive or negative behavior information provides a basis for examining its effect in different contexts (Denhaerinck et al., 1989). Because leadership attributes (positive/negative) make up a significant proportion of leadership behavior perceptions, we argue that the direction of the influence of irrelevant information for information entailing positive leadership attributes will be negative as compared to its influence for information depicting negative leadership attributes. Therefore, we test the combined effect of irrelevant information and leadership attributes information on the ratings of task and relationship-oriented leadership behaviors.

Hypothesis 1: Irrelevant information will decrease the ratings of task-oriented leadership behaviors (H1a) and relationship-oriented leadership behaviors (H1b) for leaders described by positive leadership attributes.

Hypothesis 2: Irrelevant information will increase the ratings of task-oriented leadership behaviors (H2a) and relationship-oriented leadership behaviors (H2b) for leaders described by negative leadership attributes.

2.2.3.2 Leadership outcomes

As mentioned above, leadership behaviors have also been shown to influence leadership outcomes such as effectiveness and satisfaction (Burke et al., 2006). For instance, in their meta-analysis, Burke et al., 2006, identified perceptions of leadership behaviors (such as clarifying tasks, encouraging confidence) to predict leadership effectiveness. More specifically, task-oriented behaviors such as planning tasks and clarifying responsibilities have been shown to endorse significant influence over leadership effectiveness and satisfaction (Shipper & Dillard, 2000; Amabile et al., 2004). Similarly, a positive relationship-oriented leadership behavior such as expressing confidence in subordinates have also been shown to have a significant effect on leadership effectiveness (Amabile et al., 2004). In the similar fashion, negative task-oriented behaviors (such as making a hasty response, discouraging questions and input) and negative relationship-oriented behaviors (such as being hostile, asocial) have been shown to negatively affect leadership effectiveness (Mitchell & Ambrose, 2007; Tepper, 2000 and 2007).

Although such studies provide a strong theoretical framework of precursors that affect followers' leadership evaluations and perceptions, the potential influence of irrelevant information has largely been overlooked. Drawing on representativeness heuristic account of dilution effect, therefore, we propose that while rating leadership outcomes (satisfaction with the leader and leadership effectiveness) based on positive or negative leadership attribute information, the existence of irrelevant information (e.g. individual lives in a small town) will influence the perceptions of the subjects such that irrelevant information will reduce the leadership ratings of targets showcased with positive leadership attribute information whereas

increase the leadership ratings of targets described with negative leadership attribute information. Accordingly, we hypothesize that:

Hypothesis 3: Irrelevant information will decrease the ratings of satisfaction with the leader (H3a) and leadership effectiveness (H3b) for leaders described by positive leadership attributes.

Hypothesis 4: Irrelevant information will increase the ratings of satisfaction with the leader (H4a) and leadership effectiveness (H4b) for leaders described by negative leadership attributes.

2.3 Method

The 2 x 2 (positive vs negative leadership attributes x relevant information only vs relevant and irrelevant information) experimental conditions were intended to capture the influence of irrelevant information on the effect that positive or negative leadership attributes have on the ratings of leadership behaviors (task-oriented and relationship-oriented leadership) and leadership outcomes (leadership satisfaction and effectiveness).

2.3.1 Pre-test

We conducted a pretest to authenticate that items chosen to represent relevant and irrelevant information are indeed perceived as such by the respondents. According to Peters et al. (2000), an irrelevant information is unrelated to the outcome as well as to diagnostic information. Numerous research studies argue that information that increases or decreases a stimulus person's goodness of fit to a category influence that person's typicality, which is key element of stereotypic judgments (Peters & Rothbart, 2000; Maurer, Park, & Rothbart, 1995; Rothbart & Lewis, 1988). Therefore, to ensure the non-association of irrelevant information items with relevant information, both the relevant and irrelevant pieces of information were exposed to pretest subjects to derive a precise distinction between diagnostic and non-diagnostic

information. Prior to conducting the main experiment, all items of information about the leaders were presented to pretest subjects to examine relevant and irrelevant information items. Subjects were recruited from Amazon Mechanical Turk, a popular tool for the recruitment of research subjects (Clifford et al., 2015; Keith et al., 2017). The total sample comprised 49 individuals from the United States. We reduced our sample to 26 individuals to avoid careless responses (Meade & Craig, 2012). The sample consisted of 16 male (61.5%) and ten female (38.5%) participants with the mean age of 39.1 years (*SD = 3.31*). We screened 24 pieces of information for this task. Of which 16 represented relevant information items drawn from the GLOBE study; House et al., 1999; Javidan et al., 2006; Waldman et al., 2006). The remaining eight pieces represented neutral irrelevant information (e.g., This individual: was born in small town, has blue eyes and silky hairs etc.). In the items selected as relevant information, 8 items exemplified positive leadership attributes or behaviors (e.g., This individual is trustworthy) whereas other 8 described negative leadership attributes (e.g., This individual is fraudulent, prefers his/her own company). Subjects were asked to identify each item according to its goodness of fit with their perception of a typical leader with positive (negative) attributes (by selecting "+" for positive leader attributes and "-" for a negative leader attributes) and whether the information is relevant at all to describe if the individual is good or bad leader (by selecting "0"). For items exhibiting positive behaviors, more than 90% of pretest subjects perceived them as a characteristic of good leader. Similarly, for items demonstrating negative behaviors, more than 90% of pretest subjects thought of them as indicative of a bad leader. As predicted, on average, none of the remaining items were regarded as relevant by pretest subjects i.e., on average more than 90% of the subjects regarded these pieces of information to be irrelevant.

2.3.2 Main study

Sample. Participants were recruited via Amazon Mechanical Turk. The initial sample comprised 500 individuals. Given cultural differences affect the way people perceive and

process information (Ji et al., 2009; Zakaria, 2017), we restricted our sample to the United States only to reduce possible effects of cultural differences in the perception of relevant and irrelevant information. We included an attention check, and three manipulation checks to confirm participants cautiously read our instructions and to increase the data quality of the final sample (Abbey & Meloy, 2017). We asked participants to "Select strongly disagree here, so that we know you are paying attention" at two different parts of the survey. After the omission of 96 participants who provided patterned responses and did not fulfill our attention and manipulation check requirements, we arrived at a sample size of 406 participants: 221 (54.4 %) male, 181 (44.6 %) female and 4 (1%) others. The mean age of the respondents of our study was 41.2 years (SD = 10.76). More than 86 percent of the participants reported that they were currently employed. Of these participants, 332 (81.8%) were white, 28 (6.9%) were Black, 30 (7.4%) were Asian, and 16 (3.9%) did not indicate their ethnicity.

2.3.3 Procedure

We used a 2 (positive vs. negative leadership attributes) × 2 (only relevant vs. relevant and irrelevant information) between-subjects design to explore the influence of irrelevant information on leadership perceptions. We focused on four types of leadership perceptions; two were intended to capture perceptions of leadership behaviors (i.e., task- and relationship-oriented leadership) and two assessed perceptions of leadership outcomes (i.e., satisfaction with the leader and leadership effectiveness). The design of the study involved asking subjects to form impressions from distinct pieces of information (shown as vignettes wherein we described leaders with positive or negative attributes and some irrelevant information manipulated as relevant information only vs relevant and irrelevant information) and use those impressions in providing leadership ratings about a fictitious leader to whom they were assumed to be reporting. Participants were randomly assigned to one of four different groups with varying information about leadership attributes (Positive vs Negative) and availability of irrelevant

information (irrelevant information only vs dilution condition -relevant and irrelevant information). After reading this initial information, participants were asked to rate the attitudes and behaviors of their manager.

2.3.4 Manipulations

All descriptions used in the manipulations were correctly categorized as examples of positive, negative, or irrelevant pieces of information in the pretest by more than 90% of respondents. Subjects in the control condition (relevant information only) were only provided with the relevant pieces of information about the target i.e., information which is directly related to draw assessments about leadership based on the positive or negative attributes of the leader such as 8 items exemplified positive leadership attributes whereas other 8 described negative leadership attributes. These pieces of information were drawn from the GLOBE study. Subjects in the treatment group were provided with both relevant (positive or negative leadership attributes) and irrelevant information i.e., information that is not necessarily related to assessment of leadership behaviors.

2.3.5 Measures

We used a 5-point Likert-scale ranging from "1 = Strongly disagree" to "5 = Strongly agree" to collect responses of the subjects for the following measures, if not stated otherwise.

Task and relationship-oriented leadership. We used the 8-item questionnaire for measuring perception of task and relationship-oriented leadership styles from Bock et al. (2008). A sample item of each of these scales is "My leader schedules the task to be done" (task-oriented leadership), "My leader does personal favors for the members" (relationship-oriented leadership). Cronbach's alpha for these scales amounted to $\alpha = 0.78$ for task-oriented leadership and $\alpha = 0.78$ for relationship-oriented leadership.

Satisfaction with the leader. We adopted the 2-item scale from Bass et al., (1975) to measure participant's satisfaction with the leader. These items are "I am satisfied with the

leadership style of my leader." and "In all I am satisfied with my leader." Cronbach's alpha for this scale was $\alpha = 0.98$.

Leadership effectiveness. We used a 4-item scale for measuring leadership effectiveness which were adopted from (Rosette & Livingston, 2012). A sample item for this scale is "I think that John is an effective leader". Cronbach's alpha was $\alpha = 0.97$.

Control Variables. Prior studies have shown that several personal characteristics of subjects influence leadership perceptions (Lord et al., 1986), which we also assessed as control variables: gender (coded as 0 = male, 1 = female), age (measured across five age groups: 1 = "20 – 29 years old", 2 = "30-39 years old", 3 = "40-49 years old", 4 = "50-59 years old", 5 = "60-69 years old"), ethnicity (coded as 1= White, 2 = Black, 3 = Asian, 4 = Others), education (ranging from 1 = "High school graduate to 6 = "Other advanced Degree"), current employment status (measured across 1 = employed, 2 = non-employed), tenure in the organization (answering options from 1 = "Not employed" to 5 = "Above 10 years").

Manipulation Checks. Participants responded to three manipulation checks to ensure whether our manipulations were effective. We asked participants whether (1.) "Mr. John Thompson shows behaviors or characteristics of a good leader"; (2.) "Mr. John Thompson shows behaviors or characteristics of a bad leader"; and (3.) whether they "… also received some irrelevant information regarding Mr. John Thompson which was not helpful in making a prediction about whether he is a good or bad leader."

2.4 Results

2.4.1 Manipulation checks

Three t-tests were conducted to test the effectiveness of our manipulations. As shown in Table 2.1, the first manipulation check for positive leadership behavior information yielded a statistically significant difference between the conditions ($t(404) = 53.20$, $p < 0.05$) such that

participants in the positive leadership attributes conditions ($M_{positive}$ = 4.54, $SD_{positive}$ = 0.53) perceived the leader to be better than those in the negative leadership attribute conditions ($M_{negative}$ = 1.59, $SD_{negative}$ = 0.58). Similarly, the second manipulation check for negative leadership attribute information yielded a statistically significant difference between conditions (t (361.7) = -56.84, p < 0.05) such that participants in the negative leadership attributes conditions ($M_{negative}$ = 4.41, $SD_{negative}$ = 0.57) perceived the leader to be worse than those in the positive leadership attribute conditions ($M_{positive}$ = 1.31, $SD_{positive}$ = 0.52). Finally, the third manipulation check on irrelevant information was also significant (t (404) = -38.31, p < .001) such that participants ratings were higher in non-diagnostic conditions ($M_{Non\text{-}Diag}$ = 4.42, SD_{Dil} = 0.66) than those in diagnostic condition (M_{Diag} = 1.79, SD_{Diag} = 0.71).

Table 2.1: Summary of T-Tests for Mean Group Differences- Manipulation Checks

	Good		Bad		t(*df*)	*p*-value
	M	SD	M	SD		
Main Variables						
Mr. John Thompson shows behaviors or characteristics of a good leader	4.54	0.53	1.59	0.58	53.20(404)	$p < 0.05$
Mr. John Thompson shows behaviors or characteristics of a bad leader	1.31	0.52	4.41	0.57	-56.84(361.7)	$p < 0.05$
	Diagnostic Control)		Dilution (Treatment)		t(*df*)	*p*-value
	M	SD	M	SD		
I also received some irrelevant information regarding Mr John Thompson which was not helpful in making a prediction about whether he is a good or bad leader	1.79	0.71	4.42	0.66	-38.31(404)	$P < 0.05$

2.4.2 Main results

Table 2.2 displays means, standard deviations, and zero order correlations for the main variables. Table 2.3 shows the mean differences across all conditions.

Table 2.2: Descriptive Statistics and Correlations among study variables

	Items	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
Diagnostic_Dilution	*1*	0.47	0.50													
Good_Bad	*1*	0.44	0.50	-0.05												
Task-oriented leadership	*4*	4.04	0.75	0.01	-0.53***	(0.78)										
Relationship-oriented leadership	*4*	3.07	1.46	0.03	-0.94***	0.56***	(0.96)									
Satisfaction with the leader	*2*	3.26	1.50	0.03	-0.93***	0.57***	0.95***	(0.98)								
Leadership Effectiveness	*4*	3.34	1.43	0.04	-0.92***	0.61***	0.95***	0.96***	(0.97)							
Gender	*1*	1.47	0.52	-0.04	-0.02	0.03	0.06	0.05	0.05							
Age	*1*	2.67	1.12	0.02	0.13**	0.04	-0.12*	-0.13*	-0.09	0.09						
Ethnicity	*1*	1.34	0.78	-0.07	-0.04	-0.03	0.04	0.03	0.03	-0.07	-0.23***					
Education	*1*	2.59	1.13	0.06	0.04	-0.08	-0.04	-0.07	-0.06	-0.07	-0.03	0.03				
Employed	*1*	1.13	0.34	0.02	0.04	0.08	-0.05	-0.05	0.00	0.12*	0.09	-0.05	-0.13**			
Orgtenure	*1*	3.16	1.36	0.04	0.01	-0.03	0.02	0.02	0.00	-0.11*	0.17***	0.01	0.10	-0.60***		
Industry	*1*	15.50	6.07	-0.07	0.03	-0.01	-0.06	-0.06	-0.02	0.08	0.15**	-0.05	-0.07	0.57***	-0.34***	

Computed correlation used Pearson-method with listwise-deletion.

Notes. N = 406 p < 0.05, ** p < 0.01, *** p < 0.001; α = (values in parenthesis represents Cronbach's alpha); Diag_Dil: 0 = "Diagnostic", 1 = "Diagnostic and Non.Diagnostic"; Good_Bad: 0 = "Good", 1 = "Bad"; Gender: male(1), female (2); Age: 1 = "20 – 29 years old", 2 = "30-49 years old", 3 = "40-49 years old", 4 = "50 - 59 years old", 5 = 60 years and above; Ethnicity: 1= White, 2 = Black, 3 = Asian, 4 = others; Education: 1 = "High school graduate, 2 = " college degree", 3 = "Bachelors Degree", 4 = "Master's Degree", 5 = "PhD", 6 = "Other advanced Degree; Employed: 1 = "Yes", 2 = "No"; Org Tenure: 1 = "Not employed", 2 = "1 -3 years", 3 = "4 -6 years", 4 = "7 -10 years", 5 ="above 10 years "*

Table 2.3: Summary of T-Tests for Mean Group Differences- positive and negative leadership attributes in Diagnostic (relevant only) and Dilution (relevant and irrelevant information)

		Diagnostic		Dilution		t(*df*)	*p*-value
Leadership attributes	Dependant Variables	M	SD	M	SD		
Positive leadership attributes	Task-oriented Leadership	4.45	0.50	4.306	0.481	2.223(226)	$p < 0.05$
	Relation-oriented Leadership	4.31	0.51	4.219	0.491	1.319(226)	$p > 0.05$
	Satisfaction with the leader	4.56	0.50	4.411	0.534	2.258(226)	$p < 0.05$
	Leadership Effectiveness	4.56	0.51	4.413	0.481	2.301(226)	$p < 0.05$
Negative leadership attributes	Task-oriented Leadership	3.52	0.91	3.679	0.694	-1.317(175.9)	$p > 0.05$
	Relation-oriented Leadership	1.54	0.65	1.494	0.466	0.612(175.4)	$p > 0.05$
	Satisfaction with the leader	1.65	0.63	1.721	0.559	-0.795(176)	$p > 0.05$
	Leadership Effectiveness	1.77	0.66	1.948	0.605	-1.872(176)	$p > 0.05$

The conditions in our study correspond to a 2 (positive vs. negative leadership attributes) × 2 (only relevant vs. relevant and irrelevant information) ANOVA design. A two-way between subjects ANOVA was performed with leadership attributes and irrelevant information as independent variables and the ratings of leadership behaviors (task-oriented leadership and relationship-oriented leadership) and outcomes (leadership effectiveness and satisfaction) as dependent variable. Table 2.4 displays study descriptive.

Table 2.4. Descriptive statistics of study variables

		Task-oriented leadership		**Relationship-oriented leadership**		**Satisfaction with the leader**		**Leadership effectiveness**		
Diagnostic_Dilution	Positive_ Negative	M	SD	M	SD	M	SD	M	SD	**N**
Diagnostic	Positive	4.45	0.50	4.31	0.51	4.56	0.50	4.56	0.51	116
	Negative	3.52	0.91	1.54	0.65	1.65	0.63	1.77	0.66	101
	Total	4.02	0.86	3.02	1.50	3.21	1.56	3.26	1.52	217
Dilution	Positive	4.31	0.48	4.22	0.49	4.41	0.53	4.41	0.48	112
	Negative	3.68	0.69	1.49	0.47	1.72	0.56	1.95	0.60	77
	Total	4.05	0.65	3.11	1.43	3.31	1.43	3.41	1.33	189
Total	Positive	4.38	0.50	4.26	0.50	4.49	0.52	4.49	0.50	228
	Negative	3.59	0.83	1.52	0.57	1.68	0.60	1.85	0.64	178
	Total	4.03	0.77	3.06	1.46	3.26	1.50	3.33	1.43	406

Note: M= Mean; SD= Standard Deviation; N=Sample size, Diagnostic= relevant only information; Dilution= relevant plus irrelevant information; Positive= Positive leadership attributes; Negative = Negative Leadership attributes

Task-oriented leadership. As shown in Table 2.5, ANOVA results revealed that there was no significant main effect of type of information (Diagnostic (relevant) vs Dilution (relevant and irrelevant) i.e. (F (1,402) =.011, p > .05, η_p^2 = .001). In contrast, there was a significant main effect of leadership attributes (positive vs negative) such that (F (1,402) = 138.019, p < .001, η_p^2 = .256). In addition, a significant combined effect was found between the effects of leadership attributes and irrelevant information for task-oriented leadership (R^2 = 0.271, F (1,402) = 5.235, p < 0.05, η_p^2 = .013). Additionally, simple main effects analyses were conducted to examine the effects of each independent variable at each level of the other independent variable. Least Significant Difference post hoc analysis revealed a significant simple effect of leadership attributes on participant's ratings of task-oriented leadership across each level combination of other effects i.e., diagnostic (F (1,402) = 107.53, p < 0.001, η_p^2 = 0.211) and dilution (F (1,402) = 41.283, p < 0.001, η_p^2= .093). Simple effect of type of information (diagnostic vs dilution) across each level combination of other effects was found to be significant only for positive leadership attributes at 10% significance level (F (1,402) = 2.741, p = 0.09, η_p^2 = 0.007) but not for negative leadership attributes (F (1,402) = 2.533, p = 0.11, η_p^2 = 0.006). While supporting H1a-2a, these findings suggest a combined effect of leadership attributes and irrelevant information and this effect is more nuanced for leaders exhibiting positive attributes than negative attributes.

Table 2.5: ANOVA Summary table for Task-oriented leadership

Source	Sum of Squares	df	MS	F	Sig.	Effect Size
Intercept	6294.92	1	6294.92	14476.16	0.00	0.97
Diagnostic_Dilution	0.00	1	0.0049	0.0114	0.92	0.00
Positive_Negative	60.02	1	60.017	138.02	0.00	0.26
Diagnostic_Dilution * Positive_Negative	2.28	1	2.2764	5.2348	0.02	0.01
Error	174.81	402	0.4348			
Total	6842.06	406				
R Squared = ,271 (Adjusted R Squared = ,265)						

Note: MS = Mean squares, effect size = η^2 or partial η^2. *$p < .05$. †$p < .01$. ‡$p < .001$

Relationship-oriented leadership. Results of ANOVA, as shown in table 2.6, revealed that there was no significant main effect of type of information (Diagnostic (relevant) vs Dilution (relevant and irrelevant) i.e. (F (1,402) = 1.659, p > .05, η_p^2 = .004). In contrast, there was a significant main effect of leadership attributes (positive vs negative) such that (F (1,402) =2609.25, p < .001, η_p^2 = .867). In addition, results revealed an insignificant combined effect of leadership attributes and irrelevant information for relationship-oriented leadership (R^2 = 0.868, F (1,402) = 0.114, p < 0.05, η_p^2 = .001). Although, there was an insignificant interaction, we found it worthwhile to conduct simple main effects analyses. Least Significant Difference post hoc analysis revealed a significant simple effect of leadership attributes on participant's ratings of relationship-oriented leadership across each level combination of other effects i.e., diagnostic (F (1,402) = 1443.03, p < 0.001, η_p^2 = 0.782) and dilution (F (1,402) = 1187.76, p < 0.001, η_p^2= .74). Simple effect of type of information (diagnostic vs dilution) across each level combination of other effects was found to be insignificant for both positive leadership attributes (F (1,402) = 1.522, p = 0.21, η_p^2 = 0.004) and negative leadership attributes (F (1,402) = 0.399, p = 0.52, η_p^2 = 0.01). Given these results, H1b was supported and H2b was not supported.

Table 2.6: ANOVA Summary table for Relationship-oriented leadership

Source	Sum of Squares	df	MS	F	Sig.	Effect Size
Intercept	3306.341	1	3306.341	11588.29	0.000	0.966
Diagnostic_Dilution	0.473	1	0.4732	1.6586	0.199	0.004
Positive_Negative	744.465	1	744.465	2609.25	0.000	0.867
Diagnostic_Dilution * Positive_Negative	0.032	1	0.0325	0.1138	0.736	0.000
Error	114.698	402	0.2853			
Total	4671.625	406				
R Squared = ,868 (Adjusted R Squared = ,867)						

Note: MS = Mean squares, effect size = η^2 or partial η^2. *$p < .05$. †$p < .01$. ‡$p < .001$

Like leadership behaviors, similar ANOVA analyses were performed with leadership attributes and irrelevant information as independent variables and the ratings of leadership outcomes (satisfaction with the leader and leadership effectiveness) as dependent variable.

Satisfaction with the leader. Inferences of ANOVA, as depicted in table 2.7, showed that there was no significant main effect of type of information (Diagnostic (relevant) vs Dilution (relevant and irrelevant) i.e. (F (1,402) =.537, p > .05, η_p^2 = .001). In contrast, there was a significant main effect of leadership attributes (positive vs negative) such that (F (1,402) = 2532.028, p < .001, η_p^2 = .863). In addition, a significant combined effect was found between leadership attributes and irrelevant information for satisfaction with the leader (R^2 = 0.865, F (1,402) = 4.123, p < 0.05, η_p^2 = .010). Additionally, Least Significant Difference post hoc analysis revealed a significant simple effect of leadership attributes on participant's ratings of satisfaction with the leader across each level combination of other effects i.e., diagnostic (F (1,402) = 1495.81, p < 0.001, η_p^2 = 0.788) and dilution (F (1,402) = 1075.65, p < 0.001, η_p^2= .72). Simple effect of type of information (diagnostic vs dilution) across each level combination of other effects was found to be significant only for positive leadership attributes (F (1,402) = 4.399, p = 0.03, η_p^2 = 0.011) but not for negative leadership attributes (F (1,402) = 0.743, p = 0.38, η_p^2 = 0.02). These findings suggest that the influence of irrelevant information is more pronounced for positive leadership attributes as compared to negative leadership attributes. While supporting H3a and 4a, these results signify the combined effect of leadership attributes and irrelevant information on the ratings of satisfaction with leader.

Table 2.7: ANOVA Summary table for Satisfaction with the leader

Source	Sum of Squares	df	MS	F	Sig.	Effect Size
Intercept	3768.571	1	3768.57	12277.74	0.000	0.968
Diagnostic_Dilution	0.1650	1	0.1650	0.5375	0.464	0.001
Positive_Negative	777.206	1	777.206	2532.10	0.000	0.863
Diagnostic_Dilution * Positive_Negative	1.2654	1	1.2654	4.1225	0.043	0.010
Error	123.391	402	0.3069			
Total	5221.750	406				
R Squared = ,865 (Adjusted R Squared = ,864)						

Note: MS = Mean squares, effect size = η^2 or partial η^2. *$p < .05$. †$p < .01$. ‡$p < .001$

Leadership effectiveness. Results of ANOVA, as shown in table 2.8, revealed that there was no significant main effect of type of information (Diagnostic (relevant) vs Dilution (relevant

and irrelevant) i.e. (F (1,402) =.066, p > .05, η_p^2 = .001). In contrast, there was a significant main effect of leadership attributes (positive vs negative) such that (F (1,402) = 2156.086, p < .001, η_p^2 = .843). In addition, a significant combined effect was found between leadership attributes and irrelevant information for leadership effectiveness (R^2 = 0.846, F (1,402) = 8.605, p < 0.05, η_p^2 = .021). A simple main effects analyses i.e., Least Significant Difference post hoc analysis revealed a significant simple effect of leadership attributes on participant's ratings of leadership effectiveness across each level combination of other effects i.e., diagnostic (F (1,402) = 1330.19, p < 0.001, η_p^2 = 0.768) and dilution (F (1,402) = 872.87, p < 0.001, η_p^2= 0.685). Simple effect of type of information (diagnostic vs dilution) across each level combination of other effects was also found to be significant for positive leadership attributes (F (1,402) = 4.129, p = 0.04, η_p^2 = 0.010) and for negative leadership attributes (F (1,402) = 4.493, p = 0.03, η_p^2 = 0.011). These findings suggest that the influence of irrelevant information is more pronounced for negative leadership attributes as compared to positive leadership attributes. While supporting H3b and 4b, these results signify the combined effect of irrelevant information and leadership attributes on the ratings of leadership effectiveness.

Table 2.8: ANOVA Summary table for Leadership Effectiveness

Source	Sum of Squares	df	MS	F	Sig.	Effect Size
Intercept	3984.24	1	3984.24	12544.5	0.000	0.969
Diagnostic_Dilution	0.021	1	0.0210	0.0660	0.798	0.000
Positive_Negative	684.789	1	684.789	2156.09	0.000	0.843
Diagnostic_Dilution * Positive_Negative	2.733	1	2.7330	8.6050	0.004	0.021
Error	127.678	402	0.3180			
Total	5333.438	406				
R Squared = ,846 (Adjusted R Squared = ,845)						

Note: MS = Mean squares, effect size = η^2 or partial η^2. *$p < .05$. †$p < .01$. ‡$p < .001$

2.5 Discussion

Research shows that leadership prototypes serve as a benchmark that individuals leverage to make judgment about a certain leader. These prototypes depict a mental image of

leadership (good or bad) and has been widely elaborated in leadership categorization theory (Lord & Maher, 1991, Lord et al., 1984) which states that higher the similarity with the prototype, the greater the confidence that a person exhibits leadership qualities (Lord & Hall, 2003).

Leadership categorization theory also provides a detailed account of studies which examine a daunting question of why certain demographic groups are seemingly biased in assessment of leadership attributes. These studies have largely focused on undermining leadership evaluations due to gender (Eagly & Carli, 2007), race (Rosette et al., 2008), organizational culture (Wilderom et al., 2012). Little research, however, has examined whether leadership perceptions can also be influenced by totally irrelevant information. Because people are usually confronted with big chunks of information (some relevant whilst other irrelevant), one can postulate the potential influence of irrelevant information over their cognitive thinking. For example, typically in most resumes, it's not uncommon to find relevant (e.g., qualification, education) and irrelevant information (favorite book, song, sports: information that holds zero weight in articulating whether this induvial will perform well). Normatively, our judgments should be optimal and rely only on relevant information, however, extant literature in social psychology suggests that people largely make suboptimal predictions because they rely on mental shortcuts (such that irrelevant information) also called representative heuristics (Kahneman & Tversky, 1973). These studies demonstrate that people's judgments drop to the midpoint of the scale when they encounter additional irrelevant information, a phenomenon referred to as dilution effect of irrelevant information (Nisbett et al., 1981-82). However, this effect of irrelevant information has not been examined in leadership contexts before. Hence, very little is known about how irrelevant information affect the various perceptions of leadership behaviors. Our goal in this paper was to offer a more precise picture of the influence of irrelevant information on leadership perceptions by leveraging representativeness heuristic

account of dilution effect in explaining the dilution of ratings of leadership attribute information of positive and negative nature. In the course of this, we firstly conducted a pretest to ensure a) diagnosticity of the information items exhibiting leadership behaviors (universally positive (negative) leadership attributes selected from GLOBE studies) b) non-diagnosticity of the information items believed to be irrelevant of leadership judgment. Secondly, drawing on representativeness heuristics mechanism of dilution effect, we hypothesized that existence of obviously irrelevant information affects perceptions of leadership such that it reduces extreme predictions pertinent to leadership attribute information (positive/negative). We investigated these relationships in an experimental setting using ANOVA. Our results indicated no main effect of irrelevant information. A sub-group analysis revealed a combined effect of irrelevant information and leadership attributes. More specifically and in line with the dilution effect, irrelevant information reduced the ratings of subjects for targets with positive leadership attribute information and increased the ratings of subjects for targets with negative leadership behavior information. Interestingly, we also found that contrary to our expectation, subject's ratings for perceptions of relationship-oriented leaders of targets with negative attribute information were not increased in the existence of irrelevant information. Looking at subject's response for targets entailing negative behavior information, the overall rating for task-oriented leadership behaviors tend towards the positive spectrum of the scale in the diagnostic condition as compared to relationship-oriented leadership behaviors.

This might have partly risen due to the fact that unique social experiences may shape the perceivers' social schema slightly differently to one another and therefore perceivers might have somewhat different perception of task-oriented leadership behaviors of a target (Engel & Lord, 1997; Shondrick, Dinh, & Lord, 2010). These results indicate that positive leadership attributes are generally perceived as good as compared to negative leadership attributes where we found much variance towards what people will perceive as bad leadership. Additionally,

our findings also indicate that irrelevant information weakens the implication of leadership prototypes activated by leadership attributes. One interpretation of these results is that influence of leadership prototypes varies with respect to its strength such that its effect is more powerful for abstract targets as compared to targets with more concrete information. These indications have the advantage of reducing ubiquitous bias attached to certain marginalized groups. For example, in leadership domain, blacks are generally deprived of leadership positions for various speculations about their behavior such as they are ignorant or lazy (P. Burns & Gimpel, 2000; Dixon & Rosenbaum, 2004; Chung-Herra & Lankau, 2005). However, people may not believe the same about any of the black individuals whom they know personally.

2.5.1 Theoretical implications

Extant leadership literature demonstrates that leadership perceptions are largely influenced by the context such that similar contexts result in activation of similar prototypes and vice versa (Lord et al., 2001). A recent systematic review of existing research on Implicit leadership theories revealed a list of moderators that activate prototypes. These include culture characteristics, organizational characteristics, leader characteristics, follower characteristics, and task characteristics (Junker & Van, 2014) whilst ignoring information type as a potential element which could also affect prototype activation process. Research shows that individual's perception is influenced by socially constructed explanations in their memory which via memory retrieval processes influence their decisions (Mitterer H., et al., 2009). For instance, information on past experiences and social contexts shape prototypes and individuals recalls these social interactions through declarative memory (Mitterer H., et al., 2009; Kandel et al, 2000). To date, memory retrieval in leadership research has largely focused on relevant information such that recalling factual or visual information (e.g., this individual oversees 10 projects or teams) (Payne et al., 1999). For instance, Naidoo et al., (2010) observed that visualizations influenced subject's ratings by allowing them to better recall prior leadership

assessments. However, these studies largely ignore other cogent contextual structures, not necessarily relevant, that can also affect memory retrieval and influence prototype formation. For instance, Miles et al (2008) argued that chewing gum can also serve as a contextual cue that can influence memory retrieval for a certain task. Our study, although not emphasizes the memory retrieval mechanisms, provides a starting point for researchers to disentangle the impact of such knowledge structures on leadership prototypes, because a substantial part of these prototypes includes mental schemas from individual's past experiences and social interactions.

2.5.2 Practical Implications

The findings presented in this study have implications for designing better practices for leadership evaluations. The current findings show that ratings of leaders with positive attributes drop when irrelevant information is added to the description whereas rating for a leader with negative attributes is elevated upon addition of irrelevant information. A possible practical implication of this might be to understand rater's information processing mechanisms, antecedents to these processes and their effects on their ratings. In other words, because social interactions store a lot of information (not all of it is necessarily relevant) in our memory, understanding how raters distinguishes the relevant from irrelevant pieces of information is imperative to ensure objective judgment. Leadership performance evaluations, for example, are typically carried out using standardized questionnaire about leadership behaviors such as Leadership Behavior Description Questionnaire (LBDQ) (Stogdill, 1963). The items of these questionnaire are mostly based on objective standards (e.g., items measuring productivity). However, in reality, raters are generally confronted with more information which would hold zero value in performance appraisal e.g., knowing the color of eye of certain individual could trigger a memory of someone with same physical characteristic with whom the rater might have good or bad experience in the past. This familiarity paradigm might bias his/her ratings through the activation of representativeness heuristics. Therefore, organizations should add a list of

measures to LBDQ which reveal to what extent a rater is influenced by irrelevant factors that holds no value in evaluation. This can enable teasing out the subjective components before relying on such measures in making a decision.

2.5.3 Limitations and future research

We admit that our study has some limitations. First, our study's inferences are based on an online survey experiment. Although the leadership scenario in our experiment was made as realistic as possible, we did not assess the leadership perceptions of actual raters/assessors in an organizational setting. In real-world settings, there are several factors that might play a crucial role in influencing leadership perceptions such as organizational culture, evaluation practices, age of subordinates, experience and so forth (Chong & Wold, 2010). Hence, results could differ if the same experiment is repeated in real organizational setting. Therefore, future research should elaborate on the influence of irrelevant information on leadership perceptions in field experiments to better understand the underlying processes/mechanisms of how irrelevant information influences individuals' leadership perception development.

Second, our study didn't examine a potential situation in which leadership perceptions are generated-on-the-fly or created in the moment a concept referred to as connectionist models of leadership perceptions (Shondrick et al., 2010). It might be that subjects took into account contextual salience and adjusted their ratings and didn't augment representativeness heuristic mechanisms of dilution effect while interpreting irrelevant information. Future research should also consider potential cofounding variates of contextual salience facet of connectionist leadership and develop a setting where a true dilution influence of irrelevant information can be demonstrated.

Third, we also further Nisbett's dilution studies in the leadership context by demonstrating the influence of irrelevant information for both positive and negative target features (Denhaerinck et al., 1989). In general, dilution research has focused on diagnostic

features entailing stereotypes of negative nature and failed to provide dilution for counter-diagnostic target features of positive nature. To this, Nisbett argued that "*people may be more prepared to find the good and the mundane mixed together in the same person than to believe that the evil and the mundane can coexist*" (Nisbett et al., 1981, pp. 271-272). Akin to Denhaerinck et al. (1989), our study data supports the contention that the effect of irrelevant information operates for behaviors involving both positive and negative stereotypes in general. Future dilution research should also take into account information depicting both positive and negative attributes.

Fourth, we limited our research sample to respondents from US only to rule out potential influence of cultural differences on how diagnosticity and non-diagnosticity of information is perceived. As stated above, we conducted pretest study to choose the items that are relevant and irrelevant for the judgment of leadership. Interestingly, we found significant variance in how individuals from different culture (India vs US) perceive information cues to be relevant or irrelevant. Specifically, respondents from India (high context culture) viewed most of the irrelevant items to be relevant for leadership perceptions as compared to respondents from US (low context culture). Literature on high-low context culture lists countries pertinent to these cultures and construes that individuals' interpretation of information cues varies w.r.t whether they entail high or low context culture (Croucher et al., 2012). Individuals from high context cultures place great value on personal relationships, are intuitive and relational as compared to low-context culture individuals (Nishimura et al., 2008). Therefore, for low context cultures more explicit information cues needs to be rendered to ensure they are not misinterpreted. Future research should take the potential cultural context into account and examine whether cultural context (high or low) plays any role in administering the influence of irrelevant information on leadership perceptions.

Fifth, our leadership description only included male leader thereby leading to question whether irrelevant information influences leadership perceptions of female leader in a similar fashion. Research shows that subject's hold varying prototypes w.r.t whether a leader is male or female (Rosette & Tost, 2010; Jhonson et al., 2008). Therefore, future research avenues should examine the interplay between subject's prototypical perception of male vs female leaders and whether such perceptions are influenced by the presence of irrelevant information. This will help us disentangle the variation (if any) in the strength and direction of the influence of irrelevant information on the perceptions of male and female leaders.

Sixth, in the current endeavor we primarily focused on recognition-based information processing mechanism of leadership categorization theory. However, research shows that leadership perceptions are shaped by both leaders' attributes (recognition-based processing) and outcomes (inference-based processing) (Carton and Rosette, 2011; Nye, 2002; Lord & Maher, 1993). Inference-based processing involves making perceptions of leaders based on outcome such as group or organizational performance: Subjects with good organizational performance information have been shown to provide higher leadership ratings to the target as compared to subjects with bad organization performance information. Future research should take into account the inference-based processing mechanisms of leadership perceptions (or both i.e., recognition- based and inference-based processing) and examine the propensity of influence of irrelevant information on such perceptions.

2.5.4 Conclusion

In our study, we were able to show that leadership perceptions are also influenced by irrelevant information cues that might render themselves into cognitive capacity of the evaluator. Also, most importantly, our results highlight the pervasive polarization of ratings for leader (e.g., relationship-oriented) with bad behavior information. Consequently, leaders with bad leadership behavior information may rarely be approached in the similar way that leaders

with good behavior information are, despite the availability of irrelevant information about the target such that it would require more irrelevant information to dilute bad as compared to positive leadership attributes. Therefore, our study provides a significant ground for scholars in leadership area to further focus and disentangle the varying effects of irrelevant information in settings involving leadership evaluations.

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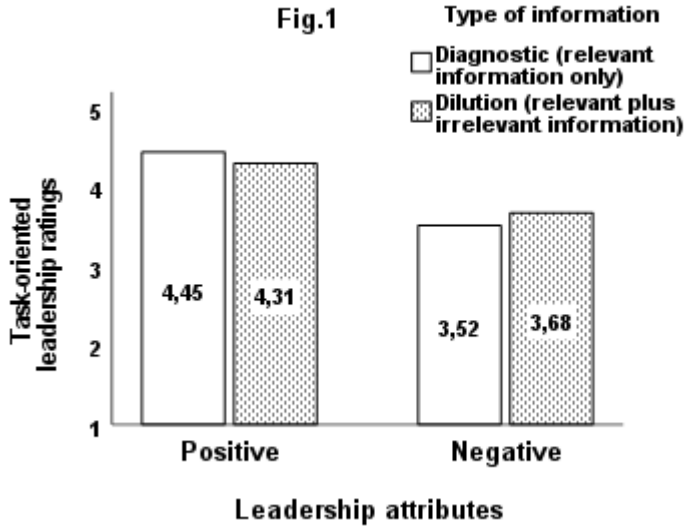
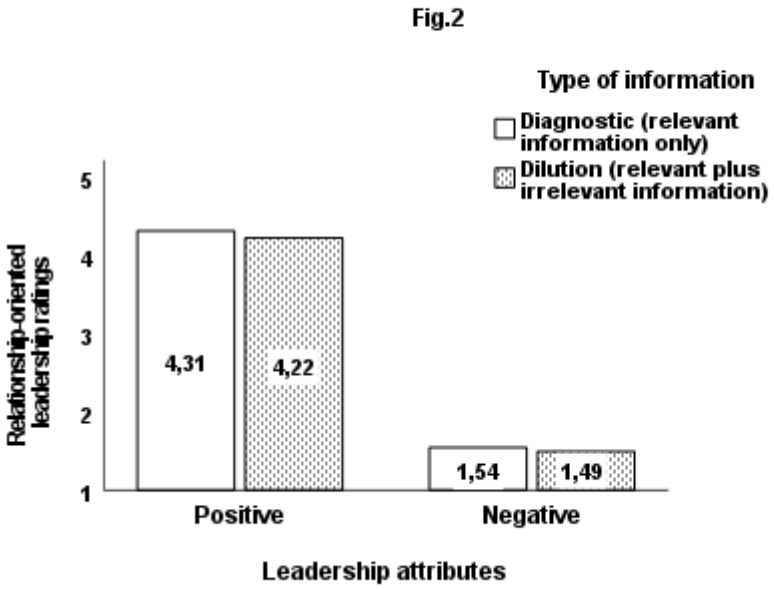
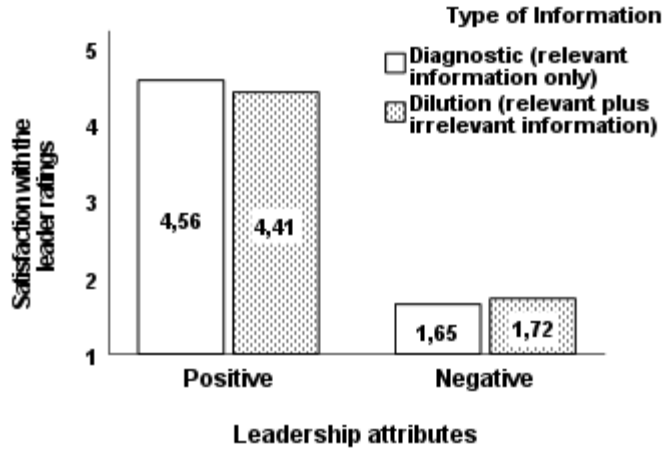


2.1 Task-oriented leadership ratings as a function of leadership attributes and type of information



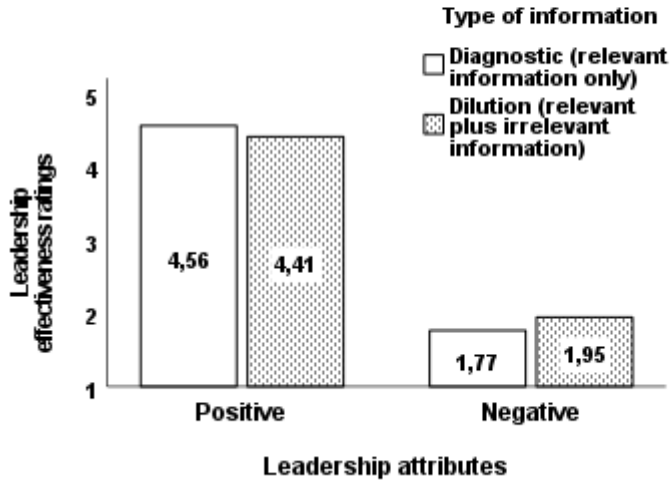
2.2 Relationship-oriented leadership ratings as a function of leadership attributes and type of information

Fig.3



2.3 Satisfaction with the leader ratings as a function of leadership attributes and type of information

Fig.4



2.4 Leadership effectiveness ratings as a function of leadership attributes and type of information

2.7 Appendix – Essay 2

Description of leader containing relevant information and irrelevant information:

Relevant information (Positive leadership attributes information). Mr. John Thompson is your direct leader. He is generally optimistic and confident. His peers regard him as a trustworthy, honest and reliable person who is known to make fair decisions. He is highly involved, energetic, enthused, and motivated. He anticipates and prepares in advance to ensure elevated work output. He boosts courage, confidence and hope in his team through reassuring and advising.

Relevant information (Negative leadership attributes information). Mr. John Thompson is your direct leader. He does not tolerate disagreement or questions and tends to give orders by imposing his values and opinions on others. He generally avoids getting together with people and therefore works separately from others. His peers regard him as someone who is moody, vengeful and easily agitated. He has also faced allegations of being fraudulent and insincere.

Irrelevant information. He was born in a small town. He has blue eyes and silky hairs. He has a mother who works as a nurse and a father who is a lawyer. He lost two fingers on his left hand. He likes to listen to music. He likes to tell jokes. He also likes to drink white beer at bar with friends.

Essay 3

3. Exploring the Influence of Irrelevant Information on Leadership Perceptions – Disentangling the Mechanisms at Play

Abstract

Optimal behavioral prediction is essential to the success of selection/promotion of individuals to leadership position. After briefly touching on the extant information processing approaches to leadership perceptions, more specifically implicit leadership theories and augmenting the dilution effect of irrelevant information from social psychology, we examine whether perceptions of leadership are influenced by irrelevant information. We propose three mediating mechanisms 1) perceived complete image 2) increased cognitive load and 3) perceived similarity that could potentially render the influence of irrelevant information on leadership effectiveness and prototypicality. We conducted an experimental study involving 730 participants to test our hypotheses. The study employed a between-subject design with 2x2 matrix where the independent variable was the type of information (only relevant vs. relevant and irrelevant information), and the moderator variable was the description of leadership attributes (positive vs. negative leadership attributes description). Our investigation included testing for the mediation effects of subjects' perceived completeness of image, cognitive load. Additionally, we also explored moderated-mediation effects of the influence of irrelevant information on leadership effectiveness and prototypicality mediated by perceived similarity across leadership attribute descriptions. Results of simple mediation analysis inferred a non-significant mediating effect of perceived complete image and cognitive load. Inferences from moderated mediation analysis yielded a full mediation effect of perceived similarity on the relationship between type of information and leadership outcomes across levels of leadership attribute descriptions. We conclude by addressing limitations and offer future research avenues

to further outline implications of irrelevant information in the context of leadership development.

Keywords: Leadership perception, Dilution effect, Enhancement effect, Cognitive load.

3.1 Introduction

Effective leadership represents a tandem interchange between leadership behaviors and how these behaviors are perceived by followers (Paustian et al., 2014). More specifically, the leadership exercise is not only shaped by individual characteristics of leaders but also by follower's perception of leaders which shape their attitude, behaviors, and decisions regarding leaders. The relevance of follower's perceptions is the core of implicit leadership theories, which indicates that evaluation of leadership is greatly impacted by how followers perceive them (Foti et al., 2017; Murphy et al., 2017; Lord et al., 1984; Lord et al., 1982). These implicit theories entail prototypes, i.e., cognitive structures used by followers that guide their processing of leadership characteristics and facilitate distinguishing individuals who possess leadership qualities from those who do not (Lord et al., 2017; Lord et al., 1984; Gündemir et al., 2014).

Though, implicit leadership theories have been quite successful in disentangling the rater's cognitive biases (e.g., schemas, prototypes) associated with the interpretation of leadership attributes (for a recent overview, see Lord et al., 2020), it has largely ignored the role of irrelevant information when assessing leadership behaviors. Assessors' information behavior refers to the ways with which they make sense of information which is either by direct interaction with an individual or recalling information in the absence of an individual (Barsalou et al., 2003). Such an interaction involves raters' exposure to a vast array of stimulus information, with the majority not relevant to the task of leadership rating (Dawes 1964; Simon 1957; Rizzo, 1975; Bøggild & Laustsen, 2016). Relevant information, for a given task of evaluating leaders typically refers to information about individual's behaviors', traits, experience, and other personal characteristics that corresponds to individual's identity (Bommer et al., 2004; Judge et al., 2009; Bettin & Kennedy, 1990). Irrelevant information, on the other hand, might include information such as their favorite color or breakfast meal that neither necessarily affect the individual's character nor his/her leadership performance. To

ensure optimal judgment, raters scrutinize for relevant and irrelevant information and chose only relevant information whilst ignoring irrelevant pieces of information. Although, research shows that raters/decision makers might utilize normative standards, they often fall for less optimal strategies and make intuitive judgments due to their exposure to stereotypes, pet theories and potentially irrelevant information (Kahneman et al, 1982).

As suggested by Tversky and Kahneman (1974), the search for relevant information often leads individuals to rely on mental short cuts such as the representativeness heuristics. The representativeness heuristic refers to rater's mental representation of the similarity between features of target and outcome, i.e., the greater the similarity, the stronger the confidence that a target contains features of the outcome or is a member of outcome category (e.g., belong to category of effective leaders). For example, learning that an individual likes a particular color that a rater has a positive association with might subtly affect his/her perception of that individual, even though this information (favorite color) is not directly relevant to individual's behavior. Nisbett et al (1981), argued that the characteristics of target which are perceived by subjects as common to outcome would be perceived as relevant whereas those which are noncommon would be regarded as irrelevant. Accordingly, features that are common to both target and outcome are positively associated with similarity between target and outcome whereas noncommon features of target and outcome are negatively associated with similarity between target and outcome. Consider, for instance, when raters evaluate an individual that is considered for promotion to a leadership position. These raters are commonly exposed to relevant pieces of information about qualification, experiences and specific attributes and behaviors that have been previously identified as contributing to the success (e.g., being intelligent, dynamic etc.) or failure (e.g., being moody, tyrant etc.) of effective leaders (Epitropaki & Martin, 2005; Shondrick et al., 2010). However, they might also encounter several irrelevant pieces of information that might be less helpful and uninformative in deciding

about the performance of given individual. These irrelevant attributes could either be surface level (i.e., those which are readily accessible by human eye such as physical appearance or attire) or deep level (i.e., those which are not readily visible such that socio economic background, for example, being from a rural or urban area). Normative standards of judgment would imply that the exposure to these irrelevant attributes should not influence/change rater's assessment of the given individual's ability to deliver the desired outcome. However, research on social judgment has revealed that the encounter with irrelevant information may lead to less extreme judgments i.e., the dilution of relevant information (Nisbett et al., 1981). This phenomenon, commonly referred to as dilution effect in social psychology, indicates that irrelevant information about individual attributes may undermine rater's judgement of individual attributes and behaviors to deliver or not deliver the desired outcome. In the leadership context, this apparently implies that exposure to irrelevant information will influence rater's reliance on implicit theories employed in shaping their leadership perceptions.

While research on ILT has made significant advancement in recent decades, majority of research on leadership perceptions has concentrated on topics such as measurement issues, ILT antecedents, contextual features, elements inhibiting/activating prototypes and ILT outcomes (for a recent overview, see Lord et al., 2020). Of factors inflicting leadership bias (such as prototype activation or inhibition), gender (Scott & Brown 2006; Badura et al., 2018; Roth et al., 2012), race (Rosette et al., 2008; Ospina & Foldy 2009), ethnicity (Sy et al., 2010; Adamovic & Leibbrandt 2023), and physical attributes such as facial attractiveness (Re & Perrett 2014; Bøggild & Laustsen 2016) have been extensively explored in leadership studies. However, the individuating effect of the kind of information (e.g., its relevance or irrelevance for the task) has mostly been overlooked.

While research on the specific effects of irrelevant information in the context of leadership is scarce, we can draw some insights from theoretical mechanisms dealing with sub-

optimal information processing. Specifically, we identified three theoretical mechanisms through which irrelevant information might affect leadership ratings.

First, the influence of irrelevant information on leadership perceptions might be that it provides additional cues that seem supportive of relevant information, thereby leading subjects to observe target as *complete person* in their cognition and consequently affect their ratings of leadership effectiveness and prototypicality. In social psychology, this effect is commonly referred to as enhancement effect (Nisbett & Ross 1980). For example, Nisbett & Wilson (1977) showed that subjects provided more positive ratings on intelligence and competence when exposed to a picture of attractive person. Similarly, Trichas and Schyns (2012) found that subjects considered facial expressions to form prototypes. Their result demonstrates that irrelevant information, e.g., physical attractiveness was assimilated with relevant information and ultimately influenced individual's perception.

Second, unlike enhancement effects, where irrelevant information effects subject's whole person image of target, irrelevant information may influence leadership perceptions through increasing *cognitive load* on subjects' working memory thereby distracting subjects from recalling relevant pieces of information. In other words, presence of irrelevant information can divert the attention away from relevant pieces of information about the target. For example, research by Maurer and Lord (1991) found that tasks acquiring high cognitive demands (e.g., analyzing information) result in sub-optimal predictions of leadership perceptions. Similarly, Rast et al. (2014), showed that uncertainty (high cognitive load) led participants with low need for cognition to rely more on leadership heuristic prototypes as compared to participants with high need for cognition.

Third, irrelevant information may influence leadership perceptions thereby reducing the *similarity* between features of target and outcome. Unlike complete image and cognitive load mechanisms, Nisbett et al (1981) argued that presence of irrelevant information influences

perceptions by reducing the similarity between target and outcome. For instance, in one of their experiments, subjects were provided with a brief vignette describing the target stimuli and were asked to predict whether the target is a child abuser or not. Vignettes included relevant (e.g., is short tempered, has unpaid debts) and irrelevant information (e.g., fixes old cars in spare time, has a mother who is housewife). Their results showed that subjects rated targets with only relevant information as more likely to be child abusers as compared to the targets for whom irrelevant information (e.g., target's mother is a housewife) was also provided.

In the remainder of this paper, we begin by providing a brief review of prior studies on the three mechanisms how irrelevant information can affect leadership perceptions (see Figure 1). Following that, we formulate our hypotheses and describe an experiment that we conducted to test our hypotheses. Our experiment involves a 2 (Independent variable: Type of information: only relevant vs. relevant and irrelevant information) × 2 (Moderator variable: Leadership attributes description: positive vs. negative leadership attributes description) between- subjects design where we test for mediation effects of subjects perceived completeness of image, cognitive load, and moderated-mediation effects of the potential mediation of perceived similarity.

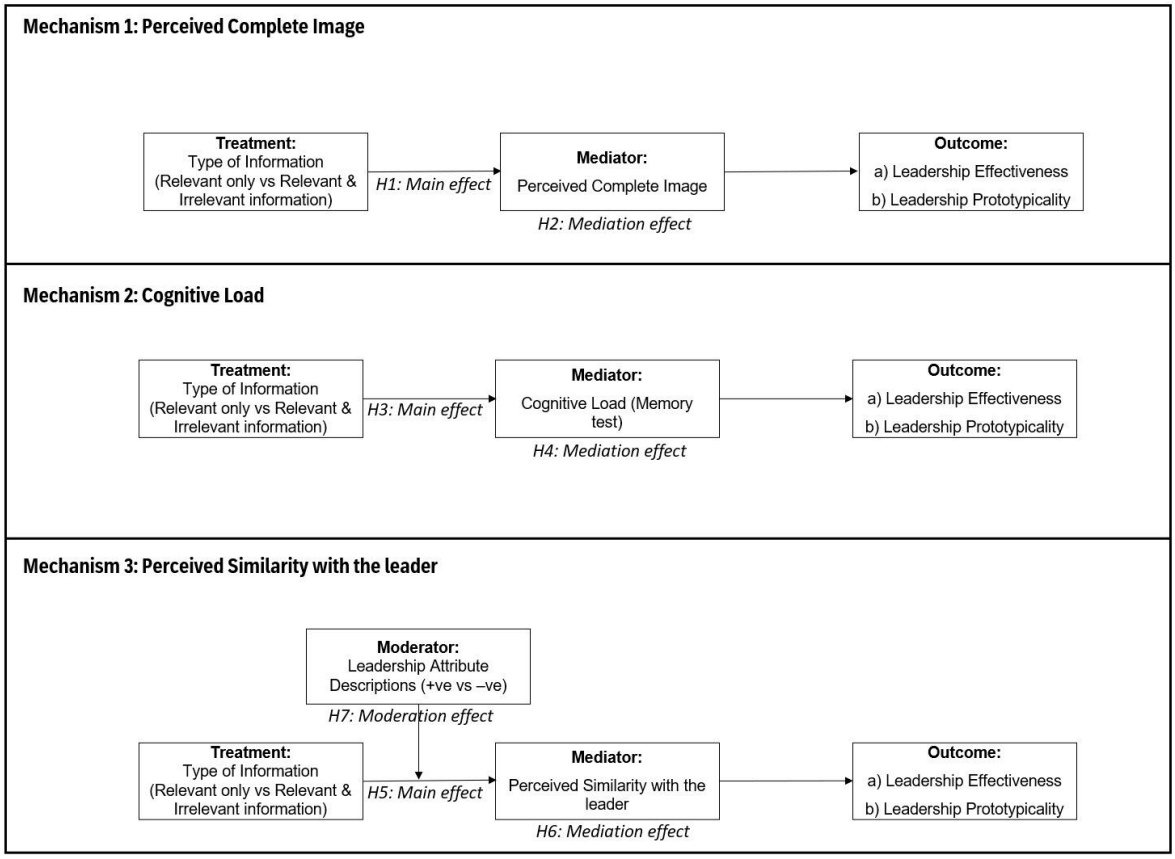


Fig 3.1. Theoretical model of proposed mediation mechanisms

Our study contributes to leadership research, as it explores how irrelevant information influences leadership ratings – an overlooked, albeit practically highly relevant topic. More specifically, our study contributes to the existing theoretical domain of implicit leadership theories (e.g., Shondrick et al., 2010; Lord et al., 2020) by shedding light on a limit of the Dilution effect "influence of irrelevant information" (Nisbet et al., 1981). In light of this, our study emphasizes the importance of exploring the mediating mechanisms that explain the process through which irrelevant information might influence our leadership perceptions. Accordingly, we propose that, the influence of irrelevant information on leadership perceptions vary such that: it may enhance leadership perception ratings via increased perceived completeness of image of leader (mechanism 1) (Anderson & Barrios, 1961), it may reduce leadership perception ratings via increased cognitive load (mechanism 2) (Murphy et al., 2016), it may reduce leadership perception ratings towards mid-point of the scale across the positive

and negative leadership attribute descriptions via reduced perceived similarity with the leader (mechanism 3) (Kahnemann & Tversky, 1982; Nisbett et al., 1981).

3.2 Theory and Hypotheses development

3.2.1 Leadership perceptions

Leadership research relies heavily on followers' perception of leader's behavior (Lord et al., 2020). These perceptions embody mental processes that guide how followers interact and interpret complex information about leaders and make behavioral decisions from this information (Epitropaki et al, 2013; Perret-Clermont, 1980; Riedl et al, 2008). The effects of leadership behaviors on perceptions of leadership have been shown to influence several outcomes including satisfaction, effectiveness, and performance (Yukl, 2012; DeRue et al., 2011). Likewise, numerous studies have shown that follower's perception of leader behavior influences individual (e.g., leadership effectiveness, career progression), team (team productivity) and organizational (e.g., performance) level outcomes (Burke et al., 2006; Lord & Maher, 1990). Leader attributes and behaviors that make up their overall perception can be either positive or negative in nature. For instance, studies conducted by GLOBE discovered that several leadership charateristics are universally endorsed as contributing to effective or ineffective leadership (Javidan et al., 2006). For example, encouraging confidence and intelligence have been shown to be related to an increased perceived leadership effectiveness and thus can be regarded as positive leadership behaviors or charateristics of prototypical leader (Yukl, 2012; Behrendt et al., 2017). On the contrary, abusive supervision and being tyrant have been shown to result in more negative leadership perceptions and lower perceived leadership success (Schyns, 2006; Schyns & Schilling, 2013; Tepper, 2007).

Though leadership perceptions provide an astute understanding of follower's attitude towards leader behaviors, it has been shown vulnerable to errors due to reliance on mental shortcuts such as prototypes, heuristics, and schemas, which often results in sub-optimal

judgments (Lord et al., 1986; Carton & Rosette, 2011; Rush & Russell, 1988). This reliance on mental shortcuts has been widely explored in leadership research based on cognitive and information processing theories that commonly deal with cognitive mechanisms related to simplifying interpretation of complex information (Rosch & Lloyd 1978; Lord & Maher, 1991). Of these theories, the most prominent and empirically examined theoretical approach are implicit leadership theories (ILTs). According to ILT, individuals develop implicit assumptions (leader prototypes) about traits and charateristics of leader through experiences which guide their perceptions and behavioral responses (such as ratings) towards leaders (Lord & Maher, 1993; Epitropaki et al., 2013; Lord et al., 1986; Eden & Leviatan, 1975; Weiss & Adler, 1981). Accordingly, while evaluating how well someone will perform in a leadership position, evaluators match target attributes with pre-existing leadership prototypes held by them (Lord & Maher, 1993). If targets' charateristics match with evaluators' leadership prototypes, they receive favorable ratings as compared to the ones with lower fit (Lord et al., 1986; Livingston et al., 2012; Giessner et al., 2009; Jhonson et al., 2008). For example, while exploring the intersection of gender, race, and leadership perceptions, Livingston et al. (2012) showed that ratings of white female (black male) targets were lower when these targets expressed dominance instead of communality as compared to black female (white male), which indicates that subjects endorsed race moderated gender specific leadership prototypes. Similarly, subjects have been shown to rate the effectiveness of prototypical leaders more favorable as compared to non-prototypical leaders (Rosette et al., 2008; Giessner & van Knippenberg, 2008; Van Knippenberg, 2011). For instance, Giessner and van Knippenberg, (2008), in a compelling series of studies, showed that group prototypical leaders, i.e., whose charateristics match with group norms, are perceived as more effective than non-prototypical leaders. Moreover, studies related to gender stereotypes have demonstrated dissimilarity between female gender stereotype and leader prototype (Heilman et al., 1989; Heilman, 2001) such that leadership prototypes primarily contain charateristics associated with male stereotypes (dominant, masculine) as

compared to female stereotypes (sensitive, helpful) (Heilman, 2001; Eagly & Karau, 2002; Lord & Maher, 1991; Powell et al., 2002). This reliance on leadership prototypes has been shown to introduce bias in ratings by making raters vulnerable to endorse false alarms (Shondrick et al., 2010).

Although ILT has been quite successful in elaborating false alarms, i.e., evaluative preference of raters for prototypical leaders whereby subjects rely on heuristics (similarity of target features with leader prototypes), it fails to capture one important element of real-world decision making. Raters are normally exposed to great chunks of information, a good amount of which if not all, might not be relevant information for evaluating leaders and thus could be regarded as irrelevant information for leadership evaluation. For instance, while evaluating candidates resume for a leadership position, it is common to observe information such as qualification, experiences, leadership qualities, hobbies, and so forth. These pieces of information have been shown to influence leadership (Mumford et al., 2000) and therefore will be regarded as relevant by evaluators whilst information such as hobbies would be regarded as irrelevant to the task of evaluating candidates for leadership position. Normatively, evaluators, to the best of their capacity, will regard only relevant pieces of information while disregarding irrelevant information. However, studies have shown raters to consider pieces of information that are less relevant to leadership (Pfeffer, 1977; Hansbrough et al., 2015). Similarly, an interesting line of research in the field of social psychology has demonstrated the influence of irrelevant information, under the notion of dilution effect, across various domains and contexts ((Nisbett et al., 1981; Meyvis & Janiszewski, 2002).

In the next sections, we delve deeper into the effect of irrelevant information on human judgments and potential mechanisms through which it can affect leadership perceptions.

3.2.2 Dilution effect

Research suggests that human decision making involves individuals' exposure to a vast array of stimulus information, the majority of which is not relevant to the decision-making task. To ensure their decisions are accurate and rational, individuals scrutinize the environment for relevant and irrelevant information (Dawes 1964; Simon 1957). However, due to cognitive and emotional limitations, this scrutiny often leads to sub-optimal judgments (Simon 1957, Tversky & Kahneman, 1974). These limitations have been shown to stem from decision makers' reliance on cognitive shortcuts that entails intuitive, effortless, and automatic simplifying strategies often called "heuristics" (Tversky & Kahneman, 1974; Kahneman 2003, Bazerman & Moore, 2012).

Although heuristics help individuals make quick judgements, they have been shown to lead to systematic biases (Bazerman & Moore, 2012; Tversky & Kahneman, 1974). More specifically, research by Tversky and Kahneman suggests that our judgments are less accurate because in many contexts raters rely on representativeness heuristics. That is, they compare the characteristics (e.g., being confident) of target stimulus (e.g., a leader) with characteristics of possible outcomes (e.g., effectiveness), and if these characteristics are similar to that of the outcomes, they predict with confidence that the target possesses the outcome value. In other words, judgements based on similarity are positively influenced by common characteristics between target and outcome and are negatively influenced by non-common characteristics. Using this framework, one can regard relevant pieces of information about a target as the ones which subjects perceive common to both target and outcome. For example, let us take an instance of predicting whether someone has leadership or managerial qualities. The information that the individual values informal influence and is visionary indicates him/her to have leadership qualities as most leaders are believed to have these attributes as opposed to managers who are believed to exercise formal authority and values planning and maintaining status quo

(Buchanan and Huczynski, 2019; Kotter 1990, 2008; Zaleznik, 1977). In contrast irrelevant information could be regarded as information that characterizes the individual but not rater's conception of outcomes. For instance, the information that individual goes to work by car (train) would be regarded by most people as irrelevant for the prediction of leader (manager). For most raters, neither the stereotype of a leader nor that of a manager either include such information or suggests its absence. Optimal judgment standards would usually exclude such information from predictions. But if raters based their judgments on the similarity between target and outcome characteristics (relevant information) and if several non-common characteristics (irrelevant information) are also made available then the predictions should be less extreme as the irrelevant information would reduce the similarity and potentially dilute the implications of relevant information a phenomenon coined as dilution effect (Nisbett et al., 1981).

Numerous studies in social psychology have acknowledged dilution effects of irrelevant information in reducing the caliber of accountants' audit decisions (Glover, 1997; Hackenbrack, 1992; Hoffman & Patton, 1997), consumer decisions about products (Meyvis & Janiszewski, 2002; Chinander & Schweitzer, 2003), decisions regarding employment recruitment (Highhouse, 1997), and judicial decision making (Fein et al., 1997). For instance, Chinander and Schweitzer (2003), across four studies found that irrelevant information such as amount of time spent in the office systematically influence the judgment of an outcome. Similarly in one of their experiments, Zukier and Jennings (1984) asked subjects to predict the academic success of two students by manipulating their academic profiles with the type of information (relevant only, such as studies on average 31 hours in a week) or relevant and irrelevant information (e.g., wears shoe size 14). They found subjects demonstrating high sensitivity to the additional irrelevant pieces of information.

As mentioned above, although leadership perception theories, more specifically ILT, provides ample understanding of how perceivers' prototype influence their impression of

leaders, it rarely takes into account the potential influence of the type of information, more specifically irrelevant information. To the best of our knowledge, no previous study related to leadership perceptions has explored the important concern that how raters, while assessing leaders, combine different pieces of information which they believe as relevant with items of information that they regard to be irrelevant. Normatively, raters are believed to consider relevant information only and ignore irrelevant information. However, there are good theoretical explanations and mechanisms for expecting that raters might not behave in that way. We will cover these mechanisms in the next section.

3.2.3 Dilution effect and leadership perceptions

Significantly, in social psychology, the use of mental shortcuts (heuristics) has been shown to occur in many diverse areas of decision-making where novice raters as well as highly trained experts have been shown to rely on representativeness heuristics (Ericsson et al., 2018; Tversky & Kahneman 1974; Kahneman 2011). In this context, the research on the dilution effect is notably exceptional. It reveals that when raters receive detailed individuating information (relevant and irrelevant) about a particular person, they tend to overlook the person's affiliation with the outcome. More specifically, information about a particular person that is representative of the outcome would be generally regarded by raters as relevant whereas information that doesn't contradict or represent outcome would be regarded as irrelevant information. In this terminology, addition of relevant pieces of information will lead to extreme predictions such that these pieces of information will increase rater's confidence that person belongs to outcome category whereas addition of irrelevant information will lead to less extreme predictions by diluting the similarity between relevant features and outcome. This phenomenon has been coined as dilution effect of irrelevant information (Nisbett et al., 1981).

As stated above, ILT studies have demonstrated that leadership perceptions involve automatic categorization-based processes that employ mental shortcuts (leadership heuristics

such as prototypes) in forming impressions about leaders. Accordingly, if leadership perceptions are contingent upon the information (e.g., positive leadership behavior description) that signifies the similarity between target's leadership prototypical features and an outcome (e.g., leadership effectiveness), then augmenting representativeness heuristics mechanisms, we can argue that the more relevant information about a particular person is added, which yields similarity between his or her characteristics and leadership prototypes, the stronger the rater's confidence that the person is an effective leader. Conversely, the more irrelevant information is added, which disregards similarity between his or her features and leadership prototypes, the weaker the rater's confidence in that person's leadership effectiveness. Accordingly, in this paper we aim to disentangle the influence of irrelevant information on leadership perceptions by proposing following three mechanisms.

3.2.3.1 Mechanism 1: Perceived Complete Image

The influence of irrelevant information on leadership perceptions might be that it provides additional cues that supports relevant information (positive or negative behavior description) leading subjects to observe target as complete person in their cognition and consequently provide extreme ratings for leadership effectiveness and prototypicality. This effect is commonly referred to as enhancement effect (Nisbett & Ross 1980). An increasing amount of evidence indicates that individuals often carry biased beliefs (or prototypes in case of ILT) leading them to process information in a self-serving manner, i.e., they may process information by assimilating it with their beliefs (Linville, 1982). For instance, Linville (1982) showed that providing more details about ingroup and outgroup members enhances the perceived similarity between them rather than reducing it. Similarly, several studies have shown that analysts tend to overreact (or underreact) to new information to support their biased beliefs (Easterwood & Nutt, 1999; Butler & Lang, 1991). Likewise, studies have shown investors in financial markets to interpret any new evidence in support of their investment philosophy

(Chang & Cheng, 2015). Also, Trichas and Schyns (2012) demonstrated that positive facial expressions, that were irrelevant to leadership performance, influenced leadership perceptions of subjects and resulted in favorable ratings.

Accordingly, as illustrated in fig 1, we propose that irrelevant information results in extreme predictions for leadership effectiveness and prototypicality where additional irrelevant information cues produce enhancement effect through enhancing target image completion. This influence varies positively across positive and negative leadership behaviors such that irrelevant information presented to subject's receiving positive leader behavior description will lead to greater perceived completeness of an effective leader and ultimately provide extreme positive ratings. Similarly, irrelevant information presented to subject's receiving negative leader behavior description will lead to greater perceived completeness of ineffective leader and ultimately provide enhanced negative ratings. Enhanced complete image of target with leader will add to existing prototypes of subjects such that positive leadership description triggering a prototype of a leader will lead to increased ratings whereas negative leadership description triggering a prototype of non-leader will lead to reduced ratings. Accordingly, we hypothesize mechanism 1 on perceived complete image as:

H_1: Irrelevant information increases the perceived complete image of a leader.

H_2: Perceived complete image mediates the positive effect of irrelevant information on (a) leadership effectiveness and (b) leadership prototypicality.

3.2.3.2 Mechanism 2: Cognitive load

Irrelevant information may influence subject's leadership perceptions through a high cognitive load on subjects' working memory. More specifically, irrelevant information may influence leadership perceptions by increasing cognitive demands and ultimately increasing cognitive load on subjects' working memory thereby distracting subjects from recalling relevant pieces

of information. In a series of experiments, Krawczyk et al. (2008) investigated the influence of irrelevant cues on the problem-solving ability of individuals and found that the presence of irrelevant information yielded increased distraction and resulted in impaired accuracy. Similarly, Patterson et al. (1991, 1992) examined how cognitive load influences the inferences regarding interpersonal perception between individuals. In the experiment, they manipulated cognitive demand with instructions to subjects to either create favorable or unfavorable impression about their interaction partners. Because it is less common to create a negative impression than a positive one, it was anticipated that more cognitive effort will be required for managing such an impression management task thereby making it more difficult as compared to creating a positive impression. Results showed that subjects provided sub-optimal predictions when presented with difficult impression management tasks that had high cognitive demands as compared to low impression management task with low cognitive demands. Likewise, research by Maurer and Lord (1991) found the impact of cognitive demands on leadership perceptions. Specifically, as compared to low cognitive demand tasks (e.g., routine activities such as administrative tasks, providing factual information) tasks requiring high cognitive demand (e.g., involving analyzing information, critical thinking), participants relied on mental short cuts (heuristics) which led to biased evaluations of leadership effectiveness. Previous research also suggests that irrelevant information is captured by individual's attention even before its suppression such that individuals unconsciously process these irrelevant cues into their mental models (Liesefeld et al., 2017; Sawaki et al., 2012).

Accordingly, as shown in fig 3 below, we propose that irrelevant information increases the cognitive load on subjects' working memory thereby distracting subjects' attention from recalling relevant pieces of information. Increased cognitive load on subject's working memory will lead to reliance on mental shortcuts (Leader prototypes) which will result in sub-optimal

predictions across leadership descriptions. Therefore, we put forth the hypotheses for mechanism 2 on cognitive load as:

H_3: Irrelevant information increases the cognitive load.

H_4: Cognitive load mediates the negative effect of irrelevant information on a) leadership effectiveness and (b) leadership prototypicality.

3.2.3.3 Mechanism 3: Perceived similarity with the leader

As argued by Tsui and Gutek (1999), people are generally drawn to others who share similarities with them. This concept extends to the dynamics between leaders and their subordinates, where both surface level similarities such as demographic similarities (Kacmar et al., 2009) and more deep-level similarities such as values, norms (Tepper et al., 2011) have been shown to play a significant role in the strength of the relationships between leader and followers. As demonstrated by Tsui et al., (2002), leader-follower similarity can foster interpersonal attraction and a sense of belongingness to a group. Similarly, when leaders and members share similar demographic characteristics, it leads to improved relationships and task-related results (Lau et al., 2008). Like demographic-based similarities, many scholars have outlined the significant impact of the perception of deeper similarities on various individual and organizational outcomes (Turban & Jones, 1988; Liden et al., 1993). For example, perceived similarity between leader-follower exchange has been shown to positively influence growth (Nahrgang et al., 2009; Bauer & Green, 1996). This is because individuals' realities are shaped by their perceptions (Hogg, 2001; Sprecher, 2014). Deep-level perceived similarity involves the extent to which a leader and their team member share similar job-related values, attitudes, and beliefs. Studies have indicated that having common values, perspectives, attitudes, and abilities can be indicative of the quality of the relationship between two individuals (Tepper et al., 2011). Likewise, studies suggest that positive relational and task outcomes are more likely to surface when the leader and followers share similar cultural norms (Lau et al., 2008;

Guillaume et al., 2012). In the similar fashion, when raters evaluate others' leadership competences, they often rely on representativeness heuristics to decide whether someone fits their impression of a leader. If an individual's charateristics are similar to raters' leadership prototype, the rater more confidently perceives that individual as similar to themselves in terms of leadership potential (Kahneman and Tversky 1972, 1973).

Accordingly, raters may rely on the representativeness heuristic whereby raters compare the charateristics of a particular person with certain leadership outcomes such as effectiveness and provide more favorable ratings to the person who exhibit prototypical features that characterizes leadership effectiveness (Kahneman and Tversky 1972, 1973). This decision making based on similarity between individual's features and rater's leadership prototype has been shown to be diluted if exposed to irrelevant pieces of information about the individual that reduces the similarity of individual's features with leadership prototype. Nisbett, Zukier, and Lemley (1981) have labelled this phenomenon the dilution effect and contended that it reveals a genuine error of human reasoning (Troutman & Shanteau, 1977). Advocates of representativeness explanation of dilution effect assumes that the introduction of individuating irrelevant information makes the characteristic of the subject appear less similar to typical characteristics of prototypes held in raters' cognition. Consequently, raters will subconsciously rely less on prototypes and give less extreme predictions.

Accordingly, as depicted in fig 1, we assume that when exposed to irrelevant information, subject's predictions about relevant information gets diluted by irrelevant information whereby subjects confidence in relevant information is reduced resulting in less extreme predictions. This reduction varies negatively across positive and negative leadership behaviors. More specifically, irrelevant information presented to subjects receiving positive leadership behavior description will lead to less extreme positive ratings because prototypes associated with positive leadership description and outcome (leadership effectiveness) gets

diluted with irrelevant target information that neither characterizes nor contradicts subject's perception of an outcome. On the other hand, irrelevant information presented to subject's receiving negative leadership behavior description will lead to less extreme negative ratings because prototypes associated with negative leadership description and outcome (leadership effectiveness) gets diluted with irrelevant target information that neither characterizes nor contradicts subject's perception of an outcome. Consequently, the presence of irrelevant information across positive and negative leadership behaviors will bring predictions towards the mid-point of the scale.

H_5: Irrelevant information decreases the perceived similarity with the leader.

H_6: Perceived similarity with the leader mediates the negative effect of irrelevant information on a) leadership effectiveness and (b) leadership prototypicality.

H_7: Leadership attribute descriptions moderate the negative indirect effect of irrelevant information on (a) leadership effectiveness and (b) leadership prototypicality via perceived similarity with the leader, such that when the leadership attribute description is positive, the indirect effect of irrelevant information leads to reduced ratings of leadership effectiveness and leadership prototypicality, whereas when leadership attribute description is negative, the indirect effect of irrelevant information leads to enhanced ratings of leadership effectiveness and leadership prototypicality.

3.3 Methodology

In order to examine the proposed theoretical mechanisms of the influence of irrelevant information on the ratings of perceived leadership effectiveness and prototypicality, we employed a 2 (Independent variable: Type of information: only relevant vs. relevant and irrelevant information) × 2 (Moderator variable: Leadership attributes description: positive vs. negative leadership attributes description) between- subjects design where we test for mediation

effects of subjects' perceived completeness of image, cognitive load and moderated-mediation effects of the influence of irrelevant information on leadership effectiveness and prototypicality mediated by perceived similarity across leadership attribute descriptions.

3.3.1 Pre-test

Research suggests that in order to regard any piece of information as irrelevant, it is important to make sure it neither characterizes nor contradicts relevant pieces of information that associates an individual with an outcome (Peters & Rothbart, 2000; Maurer, Park, & Rothbart, 1995; Rothbart & Lewis, 1988). Hence, prior to conducting the main experiment, to prevent erroneous linking of irrelevant information with relevant information, a pretest study was conducted where both types of information were first presented in the same manner as they will be presented during the main experiment. Subjects were recruited from an online platform named Prolific Academic, a popular tool for producing high-quality data (Peer et al., 2017). These subjects were randomly assigned to one of the four experimental conditions. To ensure elevated data quality, as suggested by Aguinis et al. (2021), we also selected individuals carrying a high reputation on the Prolific platform (i.e., above 95% approval ratings for prior work). Participants completed the study in exchange for £ 1.50 / $ 1.80. Subjects were exclusively drawn from United States to minimize the potential influence of the effect of cultural differences on how individuals perceive and process relevant and irrelevant information (Ji et al., 2009; Zakaria, 2017). Additionally, to increase the data quality of the final sample, we also incorporated attention checks "e.g., Select strongly disagree here, so that we know you are paying attention" at three different sections of the survey to ensure that subjects read our instructions attentively (Abbey & Meloy, 2017).

The total sample comprised 50 individuals from United States. Of these, demographics of the participants were: Male 22 (44%) Female 26 (52%) Others 2 (4%) with the mean age of 37 years (*SD = 1.33*). To avoid overwhelming subjects with extensive information that might

lead to confusion and misunderstanding, we screened only 12 pieces of information to facilitate efficient communication without overwhelming them (Grady, 2015). Of which 7 represented relevant information items drawn from the GLOBE study reflecting universally positive leadership attributes; House et al., 1999; Javidan et al., 2006; Waldman et al., 2006). We opted for universally positive dimensions from GLOBE studies, because these dimensions provide a thorough framework of understanding and evaluating leadership across various cultural contexts (Dorfman et al., 2012; House et al., 2004). The remaining five pieces represented neutral irrelevant information (e.g., X lives in suburbs of San Francisco (or near rural area of Atlanta), has office in new (old) building on Heath Road etc.). To ensure these pieces of information appear less artificial to participants, we considered only those information items that are generally available in an employee's HR data file such as their socio-economical background (lives in rural or urban area), whether this person drive a company car or use company job ticket etc. (Smith, 2013). Additionally, we also considered a fair balance of irrelevant individuating information w.r.t surface level (i.e., those which are readily accessible by human eye such that physical appearance (height) or attire (color of shirt)) or deep level (i.e., those which are not readily visible such that socio economic background (being from rural or urban area) (Harrison et al., 1998). For relevant information items, we opted for 7 items which exemplified positive leadership attributes or behaviors (e.g., This individual carries a positive attitude while showing optimism) and its opposites to describe negative leadership attributes (e.g., This individual carries a negative attitude while showing pessimism). We chose opposites to gain measurement accuracy across the two extremes for ensuring an adequate questionnaire performance. To test for information irrelevance, one of our manipulation checks was to examine if subjects correctly predicts if any irrelevant information was provided to them such that "I also received some irrelevant information regarding X which was not helpful in making a prediction about whether X is a good or bad leader". Results of manipulation check on irrelevant information revealed statistically significant difference ($t(48) = -4.61$, $p < 0.05$) such

that subjects who were offered with irrelevant information provided higher ratings that they received irrelevant information ($M_{relevant\ and\ irrelevant\ information}$= 3.6, $SD_{relevant\ and\ irrelevant\ information}$ = 1.05) as compared to the ones who were only provided with relevant information ($M_{only\ relevant}$ = 2.4, $SD_{only\ relevant}$ = 0.73).

3.3.2 Main Study

An additional 750 participants were recruited from Prolific Academic to engage in the same experimental design, bringing our overall sample size to 800. These participants received the same compensation as in the pretest i.e., £ 1.50 / $ 1.80. We ensured that individuals who had previously taken part in the Pretest were excluded in this round, as their input had already been collected and factored into the main analysis. Following the removal of 70 participants from the whole sample of 800, who did not meet our attention check requirements, we arrived at a sample size of 730 participants: 377 (51.6 %) male, 343 (47 %) female, and 10 (1.4%) others. The mean age of the respondents of our study was 40 years (SD = 16.25). More than 75 percent of the participants reported that they were currently employed. Of these participants, 593 (81.2%) were white, 82 (11.2%) were Black, 29 (4.0%) were Asian, and 26 (3.6%) did not indicate their ethnicity.

3.3.3 Procedure

To examine the influence of irrelevant information on subjects' leadership perceptions of effectiveness and prototypicality, our study design involved asking subjects to imagine themselves working as manager in a company who has to evaluate a fictitious individual (referred to as "X" to keep him/ her anonymous) for a promotion to a leadership position. Subjects are asked to form impressions from distinct pieces of information about X, provided to them by an HR representative of the company, and use those impressions in providing ratings about X for promotion to a leadership position. The distinct pieces of information are shown as vignettes wherein X is described with positive or negative leadership attributes and some

irrelevant information manipulated as only relevant vs relevant and irrelevant information. Participants were randomly assigned to one of four different groups with varying information about leadership attributes description (Positive vs Negative) and availability of irrelevant information (only relevant vs dilution condition -relevant and irrelevant information). After reading the initial information, participants were asked to provide their ratings for perceived completeness of information about the target, perceived similarity, leadership effectiveness, leadership prototypicality and lastly whether they will promote this individual or not. To test the influence of cognitive load, we administered a memory test. As mentioned earlier, in our experiment, participants were presented with a vignette entailing piece of information about leadership attributes (positive vs negative) of target individual along with the instruction to read them carefully. After responding to certain questions, memory test was administered by presenting the same participants with pieces of the same information shuffled to a new random order along with certain pieces that were not in original description presented to them. For instance, participants who received only positive leadership attributes were presented with three pieces of information representing the same positive leadership attributes and three pieces of information representing a negative piece of information. Memory is tested in treatment group whereby its intended that participants who received irrelevant information along with relevant information will be distracted such that they will commit more mistakes in recalling the correct pieces of information as compared to the group who received only relevant pieces of information. Correct recalling of information would suggest that participants, in positive leadership attribute description for instance, properly recognizes (by selecting I believe I see this information) the pieces of information reflecting positive attributes which they received earlier in the description and derecognizes (by selecting I believe I didn't see this information) the pieces of information not received earlier i.e., information relating to negative leadership attributes. Experiments of this nature have been performed in various contexts such as face recognition memory of different races and many other variables (Shapiro & Penrod 1986).

Accordingly, we proposed to measure the participants ability to correctly distinguish between the pieces of information they received (not received) earlier in the description among relevant information only vs relevant information and irrelevant information groups.

3.3.4 Manipulations

Our experiment included random assignment of participants across the manipulation of the type of information: Only relevant information (condition 1) or relevant and irrelevant information (condition 2). Participants in the only relevant condition were shown descriptions of either positive leadership attributes (e.g., shows high energy) or negative (e.g., shows less energy). Participants in relevant and irrelevant condition were shown irrelevant information (e.g., X uses company car (job train ticket) to commute to work) in addition to the relevant pieces of information. In other words, participants in the control condition (relevant information only) were only provided with the relevant pieces of information about the target i.e., information which is directly related to draw assessments about leadership based on the positive or negative attributes of the leader. Participants in the treatment group were provided with both relevant (positive or negative leadership attributes description) and irrelevant information i.e., information that is not necessarily related to assessment of leadership behaviors.

3.3.5 Measures

A 5-point Likert-scale ranging from "1 = Strongly disagree" to "5 = Strongly agree" was used to gather responses of the subjects for the following measures, unless specified otherwise.

Complete Image. We used the 4-item questionnaire for measuring perceived completeness of information adapted from Salminen et al. (2020). We used this instrument as a proxy for deducing perceived complete image. A sample item of this scale is "the description of this individual provides enough information to understand the individual it describes". Cronbach's alpha for this scale was amounted to $\alpha = 0.88$

Cognitive load. We employed a memory test to measure cognitive load. Subjects were presented with pieces of information and were given instructions to recall if they received a given piece of information in the description: after reading the instruction "Please recall, to the best of your ability, the pieces of information about X that you believe were provided (or not provided) in the description", subjects were provided with pieces information, e.g. "X carries a positive attitude while showing optimism" which they had to recall by selecting "I believe I saw this information" if they think that the given piece of information was provided to them in the description or "I believe I didn't see this information" if they think that the given piece of information was not provided to them in the description". To test whether subjects correctly recalled pieces of information, we incorporated measures of false positive and false negatives whereby we count the number of wrong relevant pieces of information being recalled and distinguished between relevant information that was not presented but falsely remembered (false positives) and relevant information that was presented but was not remembered (false negatives).

Similarity with the leader. To capture subject's perceptions of similarity, we used the 3-items from van Knippenberg & van Knippenberg (2005). The items were modified to capture the individual level perceptions instead of group level in general. A sample item from this scale is "I believe X and I are similar in many ways." Cronbach's alpha for this scale amounted to $\alpha = 0.96$.

Leadership Prototypicality. We utilized prototypic leadership dimensions from a revised 21-item version of the original 41-item scale developed by Offermann et al. (1994) to assess subject's assessment of leadership prototypes (Epitropaki & Martin, 2004). It comprised four dimensions namely, Sensitivity (3 items: understanding, sincere, helpful), Intelligence (4 items: intelligent, knowledgeable, educated, clever), Dedication (3 items: motivated, dedicated, hardworking), and Dynamism (3 items: energetic, strong, dynamic). We asked participants to

rate the target on each of the traits presented, with no explicit definition of the term provided. Each trait was rated on a 5-point scale with response options ranging from 1 = Strongly Disagree to 5 = Strongly Agree (e.g., I see X as someone who is Understanding). Cronbach's alpha was $\alpha = .97$ for this scale.

Leadership effectiveness. We employed a 4-item scale for measuring leadership effectiveness derived from (Rosette & Livingston, 2012). A sample item for this scale is "I think X is an effective leader". Cronbach's alpha was $\alpha = 0.98$.

Control Variables. Previous research has demonstrated that various personal traits of individuals impact leadership perceptions (Lord et al., 1986), which we also measured as control variables: gender (coded as 0 = male, 1 = female), age (measured across five age groups: 1 = "20 – 29 years old", 2 = "30-39 years old", 3 = "40-49 years old", 4 = "50-59 years old", 5 = "60-69 years old"), ethnicity (coded as 1= White, 2 = Black, 3 = Asian, 4 = Others), education (ranging from 1 = "High school graduate to 6 = "Other advanced Degree"), current employment status (measured across 1 = employed, 2 = non-employed), and tenure in the organization (answering options from 1 = "Not employed" to 5 = "Above 10 years").

Manipulation Checks. We also used three manipulation checks to confirm whether our manipulations were effective. We asked participants whether (1.) "X shows behaviors or characteristics of a good leader"; (2.) "X shows behaviors or characteristics of a bad leader"; and (3.) whether they "… also received some irrelevant information regarding X which was not helpful in making a prediction about whether X is a good or bad leader."

3.4 Results

3.4.1 Manipulation Checks

In order to test the efficacy of our manipulations, we conducted three t-tests. As depicted in Table 3.1, the first assessment of our manipulation check for positive leadership attribute

information yielded a statistically significant difference between the groups (t (728) = 55.7, p < 0.001) such that participants in the positive leadership attributes condition ($M_{positive}$ = 4.30, $SD_{positive}$ = 0.58) perceived the leader to be better than those in the negative leadership attribute condition ($M_{negative}$ = 1.59, $SD_{negative}$ = 0.72). Likewise, the second assessment of our manipulation check for negative leadership attribute information revealed a statistically significant difference between the groups (t (728) = -38.4, p < 0.001) such that participants in the negative leadership attributes condition ($M_{negative}$ = 4.2, $SD_{negative}$ = 0.91) perceived the leader to be worse than those in the positive leadership attribute conditions ($M_{positive}$ = 1.63, $SD_{positive}$ = 0.89). Lastly, the third manipulation check on irrelevant information was also significant (t (728) = -18.68, p < 0.05) such that participants' ratings on whether they received any irrelevant information about the target were higher in the dilution condition where both relevant and irrelevant information were provided (M_{RIR}[**]= 3.6, SD_{RIR} = 1.19) than those who were provided with only relevant information(M_{OR}[*] = 2.1, SD_{OR} = 0.86).

Table 3.1. Summary of T-Tests for Mean Group Differences- Manipulation Checks

	Positive (n=352)		Negative (n=378)		t(*df*)	*p*-value
	M	SD	M	SD		
Main Variables						
X shows behaviors or characteristics of a good leader	4.30	0.58	1.50	0.72	55.7(728)	$p < 0.001$
X shows behaviors or characteristics of a bad leader	1.63	0.89	4.20	0.91	-38.4(728)	$p < 0.001$
	Only relevant (n=321)		Relevant & Irrelevant (n= 409)		t(*df*)	*p*-value
	M	SD	M	SD		
I also received several pieces of irrelevant information regarding X which was not helpful in making a prediction about whether he is a good or bad leader	2.19	0.86	3.62	1.19	-18.68(722)	$P < 0.05$

3.4.2 Main results

Table 3.2 displays means, standard deviations, and zero order correlations for the main variables. Table 3.3 shows the mean differences across all conditions.

[**] RIR = Relevant and Irrelevant information
[*] OR = Only Relevant Information

Table 3.2: Means, Standard Deviations and Correlations of the study variables

	Items	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
Positive (0) vs. Negative (1)	*1*	0.52	0.50											
Only Relevant (0) Relevant and Irrelevant information (1)	*1*	0.56	0.50	0.01										
Complete Image	*4*	3.80	0.74	-.13**	0.01	(0.88)								
Similarity	*3*	2.79	1.16	-.75**	-0.01	0.05	(0.96)							
Prototypical	*13*	3.20	1.06	-.89**	0.01	0.12**	0.84**	(0.97)						
Leadership Effectiveness	*4*	2.87	1.43	-.89**	0.02	0.12**	0.84**	0.95**	(0.98)					
Gender[a]	*1*	1.50	0.53	0.01	-0.02	0.01	-0.01	-0.02	-0.02					
Age[b]	*1*	2.53	1.26	-.10**	-0.05	0.04	0.03	0.09*	0.07*	0.01				
Education[c]	*1*	2.41	1.16	0.04	-0.02	-0.05	0.01	-0.04	-0.05	-0.05	0.04			
Employed[d]	*1*	1.23	0.42	-0.03	0.01	-0.02	0.04	0.04	0.05	0.11**	0.14**	-0.19**		
Organization Tenure[e]	*1*	2.98	1.61	0.04	-0.01	0.01	-0.07	-0.05	-0.05	-0.04	0.06	0.08*	-0.65**	

Computed correlation used Pearson-method with listwise-deletion.

*Notes. N = 730 * p < 0.05, ** p < 0.01; α = (values in parenthesis represents Cronbach's alpha); Only relevant_Relevant and Irrelevant information: 0 = "Only relevant", 1 = "Relevant and Irrelevant information"; Positive_Negative: 0 = "Positive", 1 = "Negative"; Gender was coded as: male(1), female (2); Age[b] was coded as: 1 = "20 – 29 years old", 2 = "30-49 years old", 3 = "40-49 years old", 4 = "50 - 59 years old", 5 = 60 years and above; Education[c] was coded as: 1 = "High school graduate, 2 = " college degree", 3 = "Bachelor's Degree", 4 = "Master's Degree", 5 = "PhD", 6 = "Other advanced Degree; Employed[d] was coded as: 1 = "Yes", 2 = "No"; Organization Tenure[e] was coded as: 1 = "Not employed", 2 = "1 -3 years", 3 = "4 -6 years", 4 = "7 -10 years", 5 ="above 10 years "*

Table 3.3: Summary of T-Tests for Mean Group Differences- Positive and Negative leadership attributes in only relevant information and relevant & irrelevant information groups

		Only relevant information		Relevant and Irrelevant information			
Leadership attributes	Dependent Variables	M	SD	M	SD	t(*df*)	*p*-value
Positive attributes	Complete Image	3.85	0.67	3.93	0.70	-1(350)	$p > 0.05$
	Similarity	3.80	0.61	3.62	0.74	2.61(350)	$\mathbf{p < 0.05}$
	Leadership Effectiveness	4.21	0.53	4.18	0.62	0.53(350)	$p > 0.05$
	Prototypical Leader	4.19	0.39	4.18	0.43	0.39(350)	$p > 0.05$
Negative attributes	Complete Image	3.72	0.79	3.68	0.77	0.434(376)	$p > 0.05$
	Similarity	1.83	0.81	2.04	0.84	-2.46(376)	$\mathbf{p < 0.05}$
	Leadership Effectiveness	1.54	0.63	1.72	0.76	-2.58(376)	$\mathbf{p < 0.05}$
	Prototypical Leader	2.22	0.45	2.34	0.59	-2.11(376)	$\mathbf{p < 0.05}$

Perceived complete image. We tested the main effect of the irrelevant information on subjects' perception of complete image using independent t-tests (see Table 3.4). In Hypothesis 1, we hypothesized that subject's perception of the targets complete image will be influenced by the existence of irrelevant information such that, in lines with enhancement effect, irrelevant information will be assimilated to relevant information or any existing prototypes thereby yielding a more extreme judgment. T-test results provides evidence for the enhancement effect such that as compared to subjects receiving only relevant information (M_{OR}[*] = 3.78, SD_{OR} = 0.73), subjects exposed to both relevant and irrelevant information yielded somewhat favorable ratings (M_{RIR}[**] = 3.80, SD_{RIR} = 0.74). However, the hypothesized effect was not significant (t (728) = -0.27, p > 0.05). Interestingly, as depicted in table 3, a similar effect was revealed across positive and negative description information thereby indicating that irrelevant information increases the complete image via its assimilation to the respective prototype category (positive or negative attributes): Positive leadership attribute information: M_{OR}= 3.85, SD_{OR}= 0.67; M

[*] OR = Only Relevant Information
[**] RIR = Relevant and Irrelevant information

$_{RIR}$= 3.93, SD_{RIR}= 0.70. Negative leadership attribute information: M_{OR}= 3.72, SD_{OR}= 0.79; M $_{RIR}$= 3.93, SD $_{RIR}$= 0.70).

As documented in the classic methods paper by Baron & Kenny (1986), approach to testing mediation requires conformation to casual steps approach. Because our results didn't yield significant association of independent variable (i.e., Type of information: only relevant vs. relevant and irrelevant information) and proposed mediator (Complete Image), we didn't proceed with conducting the mediation analysis.

Table 3.4: Summary of T-Tests for Complete Image Mean Group Differences- across only relevant and relevant & irrelevant information groups

	Only relevant information		Relevant and Irrelevant information			
Dependent Variables	M	SD	M	SD	t(*df*)	*p*-value
Complete Image	3.78	0.73	3.80	0.74	-0.27(728)	$p > 0.05$

Cognitive load. We hypothesized that irrelevant information would lead to increased cognitive load resulting in distraction from relevant pieces of information. To examine subject's cognitive load, we employed memory test by using an information recall task. Because our test concerned two types of information (presented earlier vs not presented earlier) and two possible responses "Yes" (I believe I see this information in the description) vs "No" (I believe I didn't see this information), any of four types of events can occur on a single memory test trial which can be charted in stimulus-response matrix as shown in table 3.5a and 3.5b:

Table 3.5a: Memory test of the group differences between Good and Bad leadership descriptions in Relevant information only group

Relevant information only (n=321)				
Positive (157)				
Memory test **Stimulus Class**		**Response**		
		Yes	**No**	**Total**
	Pieces of information from positive leadership attribute description	Hits	False Negative	
Old (Relevant-Positive1)	X carries a positive attitude while showing optimism	143	14	
Old (Relevant-Positive2)	X anticipates and prepares in advance to complete his/her tasks	137	20	157
Old (Relevant-Positive3)	X has been seen as encouraging confidence in his/her subordinates	150	7	
	Pieces of information from negative leadership attribute description	Correct rejections	False Positive	
New (Relevant-Negative1)	X is less enthused and less motivated	150	7	
New (Relevant-Negative2)	X barely works around the clock and shows less energy	147	10	157
New (Relevant-Negative3)	X is less confident about his/her work	151	6	
Negative (164)				
Memory test **Stimulus Class**		**Response**		
		Yes	**No**	**Total**
	Pieces of information from negative leadership attribute description	Hits	False Negative	
Old (Relevant-Negative1)	X is less enthused and less motivated	158	6	
Old (Relevant-Negative2)	X barely works around the clock and shows less energy	156	8	164
Old (Relevant-Negative3)	X is less confident about his/her work	134	30	
	Pieces of information from positive leadership attribute description	Correct rejections	False Positive	
New (Relevant-Positive1)	X carries a positive attitude while showing optimism	158	6	
New (Relevant-Positive2)	X anticipates and prepares in advance to complete his/her tasks	156	8	164
New (Relevant-Positive3)	X has been seen as encouraging confidence in his/her subordinates	156	8	

Table 3.5b: Memory test of the group differences between Good and Bad leadership descriptions in Relevant and irrelevant information group

Relevant and irrelevant information i.e., Dilution (n=409)				
Positive (195)				
Memory test Stimulus Class		**Response**		
		Yes	**No**	**Total**
	Pieces of information from positive leadership attribute description	Hits	False Negative	
Old (Dilution-Positive1)	X carries a positive attitude while showing optimism	179	16	
Old (Dilution-Positive2)	X anticipates and prepares in advance to complete his/her tasks	169	26	195
Old (Dilution-Positive3)	X has been seen as encouraging confidence in his/her subordinates	168	27	
	Pieces of information from negative leadership attribute description	Correct rejections	False Positive	
New (Dilution-Negative1)	X is less enthused and less motivated	188	7	
New (Dilution-Negative2)	X barely works around the clock and shows less energy	186	9	195
New (Dilution-Negative3)	X is less confident about his/her work	182	13	
Negative (214)				
Memory test Stimulus Class		**Response**		
		Yes	**No**	**Total**
	Pieces of information from negative leadership attribute description	Hits	False Negative	
Old (Dilution-Negative1)	X is less enthused and less motivated	203	11	
Old (Dilution-Negative2)	X barely works around the clock and shows less energy	190	24	214
Old (Dilution-Negative3)	X is less confident about his/her work	179	35	
	Pieces of information from positive leadership attribute description	Correct rejections	False Positive	
New (Dilution-Positive1)	X carries a positive attitude while showing optimism	200	14	
New (Dilution-Positive2)	X anticipates and prepares in advance to complete his/her tasks	193	21	214
New (Dilution-Positive3)	X has been seen as encouraging confidence in his/her subordinates	198	16	

The purpose of this test is to determine participant's sensitivity to the old/new difference under only relevant information vs relevant and irrelevant information group. The yes-no responses, as mentioned earlier were describe as: correctly recognizing (Yes- I believe I see this information) an old piece of information is termed as a *hit*; failing to recognize it (No- I believe I didn't see this information), a *False negative*. Incorrectly recognizing a new item as old is classified as *false positive* while accurately responding "No" to a new item is categorized as a *correct rejection*. We also used Relevant-Positive (1,2,3), Relevant-Negative (1,2,3) & Dilution-Positive (1,2,3), Dilution-Negative (1,2,3) as context-specific names for the two stimulus classes. We were mainly interested in no of False positives and False negatives across the treatment and control group. As shown in table 3.6, a t-test was conducted to compute the mean difference between the groups. T-test results ($t(719) = -1.34$, $p > 0.05$) indicated that as compared to subjects receiving only relevant information ($M_{OR}^{*} = 0.14$, $SD_{OR} = 0.52$), subjects exposed to both relevant and irrelevant information yielded somewhat more False positive responses ($M_{RIR}^{**} = 0.20$, $SD_{RIR} = 0.59$). Similarly, subjects receiving only relevant information yielded less False negative responses ($M_{OR} = 0.26$, $SD_{OR} = 0.55$) as compared to subjects receiving both relevant and irrelevant information yielding slightly more False negative responses ($M_{RIR} = 0.34$, $SD_{RIR} = 0.63$). The difference between the groups was not significant ($t(719) = -1.72$, $p > 0.05$). Because the mean difference across the groups for both False positives and False negatives was not significant, our Hypothesis H_3 could not be supported. We didn't proceed with conducting analyses for mediation hypotheses because we didn't find direct effect of Type of information i.e., only relevant vs. relevant and irrelevant information on Cognitive load.

[*] OR = Only Relevant Information
[**] RIR = Relevant and Irrelevant information

Table 3.6. Summary of T-Tests for Mean Group Differences- relevant information only and relevant & irrelevant information

	Only Relevant information (n=321)		Relevant & irrelevant information (n=409)		t(*df*)	*p*-value
	M	SD	M	SD		
Main Variables						
False Positives	0.14	0.52	0.20	0.59	-1.34(719)	$p > 0.05$
False Negatives	0.26	0.55	0.34	0.63	-1.723(719)	$p > 0.05$

Perceived Similarity. The hypothesized moderated mediation model was tested using the PROCESS macro model number 7, which tests a model whereby leadership attribute description (Positive or Negative) moderates the effect of irrelevant information on outcomes mediated by perceived similarity (Figure 4; Hayes, 2013). The full model is comprised of two regression sub-models such that model 1 entail regressing the mediator (M: perceived similarity) onto independent variable (X: type of information- only relevant or relevant and irrelevant information), moderator (W: leadership attribute description- positive or negative) and XW (interaction term). Regression slope for XW** reflects the moderating effect of W on X-M relationship (Path a). Model 2 entails regressing Y simultaneously onto X and M.

In Hypothesis H_5, we postulated that irrelevant information would reduce the perceived similarity. Results revealed that there was a significant main effect of type of information (only relevant vs relevant and irrelevant information) on perceived similarity i.e. ($B = -0.18$, $t(728) = -2.31$, $p < 0.05$). As depicted in Table 3.7a-b, leadership attribute description was found to moderate the effect of irrelevant information on leadership effectiveness (Unstandardized interaction $B = 0.39$, $SE = 0.11$, $t = 3.47$, $p < 0.001$) and leadership prototypicality (Unstandardized interaction $B = 0.39$, $SE = 0.11$, $t = 3.47$, $p < 0.001$). Perceived similarity was also associated with leadership effectiveness ($B = 1.04$, $SE = .02$, $t = 42.1$, $p < .001$) and leadership prototypicality ($B = 0.76$, $SE = .02$, $t = 41.7$, $p < .001$). Next, our analysis also

assessed if leadership attribute description is significantly moderating the indirect effect which is examined by index of moderated mediation value. In other words, this assessment infers that if the slope is significantly different than zero which indicates moderated mediation. For both leadership effectiveness and leadership prototypicality, the overall moderated mediation model was supported with the index of moderated mediation (leadership effectiveness: b= 0.40 (95% CI = .18; 0.64) & leadership prototypicality: effect= 0.30 (95% CI = .13; 0.46). As zero is not within the CI this indicates a significant moderating effect of leadership attribute (positive vs negative) on irrelevant information condition on the indirect effect via perceived similarity (Hayes, 2015). For leadership effectiveness, the conditional indirect effect was strong in those participants who received negative leadership attributes description (b = 0.20, SE = 0.08, 95% CI = 0.03; 0.37) and weak in those who received positive leadership attributes description (effect = -0.19, SE = 0.07, 95% CI = -0.34; -0.05). Similarly, for leadership prototypicality, the conditional indirect effect was to some extent strong in those participants who received negative leadership attributes description (index = 0.16, SE = 0.06, 95% CI = 0.02; 0.28) and weak in those who received positive leadership attributes description (effect = -0.14, SE = 0.05, 95% CI = -0.25; -0.03). Our results revealed support for Hypotheses H_6 and H_7.

Table 3.7a: Moderated- Mediation model of the influence of irrelevant information on leadership effectiveness

Perceived similarity as Outcome Variable						
	b	SE	t	p	LLCI	ULCI
constant	3.83	0.20	18.78	0.00	3.43	4.23
only relevant information _relevant and irrelevant information	-0.19	0.08	-2.33	0.02	-0.35	-0.03
Positive_Negative	-1.99	0.09	-23.32	0.00	-2.15	-1.81
Interaction	0.39	0.11	3.47	0.00	0.17	0.62
Gender	0.02	0.05	0.38	0.70	-0.09	0.13
Age	-0.04	0.02	-1.81	0.07	-0.09	0.00
Education	0.05	0.02	1.84	0.07	0.00	0.09
Employed	0.01	0.09	0.14	0.89	-0.17	0.20
Organization Tenure	-0.02	0.02	-0.95	0.34	-0.07	0.02
Leadership effectiveness as Outcome Variable						
	b	SE	t	p	LLCI	ULCI
constant	0.03	0.22	0.12	0.90	-0.40	0.45

only relevant information _relevant and irrelevant information	0.06	0.06	1.02	0.31	-0.05	0.17
Perceived Similarity	1.04	0.02	42.10	0.00	0.99	1.08
Gender	-0.05	0.05	-0.93	0.35	-0.16	0.06
Age	0.06	0.02	2.54	0.01	0.01	0.11
Education	-0.07	0.03	-2.60	0.01	-0.11	-0.02
Employed	0.00	0.09	-0.05	0.96	-0.19	0.18
Organization Tenure	0.00	0.02	0.16	0.88	-0.04	0.05

	Indirect effect				
Dependent Variable	Moderator	B	SE	95% LLCI	95% ULCI
Leadership Effectiveness	Positive attributes	-0.19	0.07	-0.34	-0.05
	Negative attributes	0.20	0.09	0.04	0.39
	Moderated-Mediation effect				
		Index	SE	95% LLCI	95% ULCI
	Positive_Negative attributes	0.40	0.12	0.18	0.64

Table 3.7b: Moderated- Mediated model of the influence of irrelevant information on Leadership prototypicality

Model 2: Leadership prototypicality as Outcome Variable						
	b	SE	t	p	LLCI	ULCI
constant	1.10	0.16	6.84	0.00	0.78	1.41
only relevant information _relevant and irrelevant information	0.04	0.04	0.87	0.38	-0.05	0.12
Perceived Similarity	0.76	0.02	41.71	0.00	0.73	0.80
Gender	-0.02	0.04	-0.54	0.59	-0.10	0.06
Age	0.06	0.02	3.36	0.00	0.02	0.09
Education	-0.05	0.02	-2.51	0.01	-0.08	-0.01
Employed	-0.04	0.07	-0.50	0.62	-0.17	0.10
Organization Tenure	0.00	0.02	-0.07	0.95	-0.04	0.03

	Indirect effect				
Dependent Variable	Moderator	B	SE	95% LLCI	95% ULCI
Leadership Prototypicality	Positive attributes	-0.14	0.05	-0.25	-0.04
	Negative attributes	0.16	0.06	0.03	0.28
	Moderated-Mediation effect				
		Index	SE	95% LLCI	95% ULCI
	Positive_Negative attributes	0.30	0.08	0.13	0.46

3.5 Discussion

Leadership practice is not only about leader's characteristics, behaviors, and in which context they work but is also greatly shaped by how observers perceive their leadership qualities. Leadership perceptions have been shown to influence individual, team, and organizational level outcomes (Eagly & Carli, 2007; Mehra et al., 2006; Epitropaki & Martin, 2005). Because observers' interpretation of leaders' behaviors is imperative to leadership success, it is important to understand what influences their processing of information about leaders that ultimately shape their unique perceptions. To date, studies on implicit leadership theories have largely augmented cognitive simplification mechanisms whereby raters have been shown to rely on mental shortcuts (prototypes) that guide their processing of leadership characteristics and simplify their perceptions about leadership behaviors. These studies have shown that the congruence between an individuals' attributes and observers' leadership prototypes lead observers to have confidence in their leadership abilities thereby leading them to provide more favorable ratings as compared to individuals whose attributes doesn't match with observer's leadership prototypes. Numerous studies pertaining to social categories (such as gender, age, ethnicity, culture etc.) has largely contributed to ILT literature by showcasing the vulnerability of leadership assessment to rater's reliance on heuristics (Paris, 2004; Offerman et al., 1994; Epitropaki & Martin, 2005). For instance, Schyns (2006), explored the influence of implicit leadership assumptions held by followers and supervisors on the performance appraisal and promotion recommendation of leaders having certain demographics (women, ethnic minority). The results of the study revealed that a poor match between followers' and supervisors' general image of a leader and attributes of a certain candidate for promotion leads to less favorable ratings.

Though, these studies have significantly contributed to our understanding of how these social categories influence leadership perceptions, they overlook a critical aspect of many real-

world tasks, including the presence of irrelevant information when rating leaders. Supervisors or raters normally hold information that they believe to be relevant and information that they believe to be irrelevant. Therefore, previous studies have not examined how do people integrate relevant and irrelevant pieces of information. Raters typically regard themselves as normative predictors by assuming that their predictions rest only on relevant information, however there are good theoretical grounds that establish that existence of irrelevant information might dilute (less extreme) or enhance (more extreme) their ratings. The dilution effect of irrelevant information has been shown to reduce extreme predictions (Nisbett et al., 1981) whereas enhancement effect of any additional ambiguous information has been shown to increase ratings (Nisbett & Ross, 1980). Therefore, by using arguments from dilution effect to explore the underlying effect of irrelevant information on leadership perceptions, we proposed three mediating mechanisms through which irrelevant information might potentially influence leadership perceptions. These are perceived complete image, increased cognitive load, and perceived similarity with the leader.

Before preceding to the main experiment, we conducted a pretest study to safeguard the distinction between relevant and irrelevant pieces of information (Peter & Rothbart, 2000). Inferences from t- test yielded a statistically significant differentiation between the pieces of information selected to be relevant and irrelevant. Results of our main experiment yielded that irrelevant information had a positive effect on the ratings of perceived complete image whereas a negative effect on the cognitive load and perceived similarity.

More specifically, building on the commonly held assumptions about the way people process social information, i.e., individuals often assimilate uncertain information to stereotypes (Nisbett & Ross, 1980), we posited that irrelevant information would enhance an individual's perceived complete image by leading raters to assimilate irrelevant information in support of relevant information. In lines with enhancement effect of irrelevant information

which posits that additional information leads to enhanced ratings (Peterson and Pitz, 1988), t-test results revealed a non-significant difference between the groups with subjects exposed to both relevant and irrelevant information provided marginally more favorable ratings as compared to the ones provided with only relevant information. A similar effect was found across subjects who received descriptions of either positive or negative leadership attribute.

Furthermore, we intended that the influence of irrelevant information on leadership perception might be due to its contingency to elevate cognitive load and ultimately distracting raters working memory. To test our contention, we employed memory recall test where we measured cognitive load. More specifically, we posited that existence of irrelevant information will result in increasing cognitive load which in turn would drive raters to employ mental shortcuts ultimately leading to distraction and inaccuracy in recalling relevant information. In line with findings from Krawczyk et al. (2008), our results also established that individuals who were exposed to additional irrelevant information committed more mistakes in correctly recalling the relevant information as compared to the individuals who received only relevant information. This implies that in many real-world evaluation settings, raters' exposure to any additional irrelevant information could lead to sub-optimal judgments (Maurer and Lord, 1991).

Additionally, building on representativeness heuristics account of irrelevant information, we also posited that additional irrelevant information would reduce leader's similarity with rater's leadership prototype. Our results inferred a significant direct effect of irrelevant information on perceived similarity with the leader. Moreover, our results also inferred a significant indirect effect of irrelevant information on leadership outcomes across positive and negative leadership attributes which was fully mediated by perceived similarity with the leader. More interestingly, the conditional indirect influence of irrelevant information on both leadership effectiveness and prototypicality was more nuanced for participants

receiving description of negative leadership attributes as compared to positive leadership attributes. These findings indicate a negative bias, whereby individuals tend to easily recall and give more weight to negative information and experiences as compared to positive ones (Kensinger, 2009; Ross, 1977; Phelps, 2004).

3.5.1 Theoretical implications

An interesting implication of our theoretical analysis and these empirical findings is that leadership perceptions are vulnerable to the existence of irrelevant information. Our findings suggest that existence of irrelevant information presents a significant challenge to ensuring rater's accuracy in ratings of leadership behavior. Also, its effect on data used for testing ILT may also inform future development of ILT because studies conducted so far in ILT literature might have been suffering from endogeneity bias where the effect of irrelevant information have been ignored in examining implicit assumptions of subjects. Such concerns are crucial, because if the relation between leadership prototypes and perceptions is due in part to irrelevant information that has not been considered in already established relationships, then those correlations simply have no meaning (Antonakis et al., 2010).

3.5.2 Practical implications

Our results have important implications for leadership practice. Knowing which kind of irrelevant information impact followers' leadership perceptions most and their consequent behaviors, leaders can inform themselves about which information to make more salient in their interaction with followers. As emphasized by Engle and Lord (1977, p.991), leader's first impression on followers is difficult to change. Displaying information that enhances their impression can lead to ameliorating individual outcomes (Sosik et al., 2002).

3.5.3 Limitations and future research

Like any study, we acknowledge that our study had few limitations. First, our results are drawn from an online experiment where subjects were provided with only limited pieces of information. In real organizational setting, both relevant and irrelevant information varies in their availability such that rater normally possess more detailed accounts of information about individuals. Thus, replicating the same experiment in real organizational setting might render different results if future studies do not carefully take into account all the possible relevant and irrelevant pieces of information.

Second, our study lacks manipulation of mediators that begs future researchers to conduct two randomized experiments. A manipulation of mediators in the second experiment will yield more realistic and accurate casual inferences between irrelevant information→complete image/ cognitive load/ perceived similarity→ leadership effectiveness/ prototypicality (Spencer et al., 2005; Stone-Romero & Rosopa, 2011; West & Aiken, 1997).

Third, to further corroborate our results, as a robustness check, we also tested for the influence of distinct pieces of irrelevant information on ratings of leadership effectiveness and leadership prototypicality because it might be that the content of each irrelevant piece of information presented together with relevant information might influence subjects' overall perception of individual. More specifically, for each pair of irrelevant information, we created dummy variables e.g., we dummy coded striped shirt as 0 and solid shirt as 1(See Appendix for complete list). Next, for each pair we ran a regression analysis to test whether on average any of the irrelevant information piece in pair yields higher or lower ratings of leadership effectiveness and prototypicality. Our results indicated non-significant difference across all pairs of irrelevant information, except for striped/solid shirt information. Interestingly, irrelevant information that the individual often wears solid shirt, as compared to striped shirt,

has been somewhat nuanced in predicting leadership effectiveness and prototypicality. More specifically, subjects predicted leader wearing solid shirt to be more effective as prototypical as compared to leader wearing striped shirt. Individuals wearing more formal dressing (such as solid shirt) have been shown to symbolize power and status (Barry & Weiner, 2019). Similarly, research suggests that individuals wearing formal clothing are perceived as more prototypical leaders as compared to those who wear less formal clothing (Peluchette & Karl, 2007; Ruetzler, et al., 2012; Sebastian & Bristow, 2008). Therefore, future studies should take into account the potential influence of information, entailing charateristics of leader clothing, on perceptions of leaders and whether these perceptions vary across gender of both raters and/or leaders (Maran et al., 2021; Lower, 2018).

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3.7 Appendix – Essay 3

Description of leader containing relevant only information and irrelevant information:

Relevant information (Positive leadership attributes information). As an employee, X exceeds the majority of the expectations in his/her role and carries a positive attitude while showing optimism and is confident about his/her work. X's daily work has earned him/her a reputation as someone who is enthused and motivated, who anticipates and prepares in advance to complete his/her tasks. Following the tradition of working to the highest possible standards,

X mostly works around the clock showing high energy. In situations where urgent and unexpected tasks were given to the team, X has always been seen as encouraging confidence in his/her subordinates.

Relevant information (Negative leadership attributes information). As an employee, X exceeds very few expectations in his/her role and carries a negative attitude while showing pessimism and is less confident about his/her work. X's daily work has earned him/her a reputation as someone who is less enthused and less motivated, who is less likely to anticipate and prepare in advance to complete his/her tasks. Hardly following the tradition of working to the highest possible standards, X barely works around the clock and shows less energy. In situations where urgent and unexpected tasks are given to the team, X has rarely been seen as encouraging confidence in his/her subordinates.

Irrelevant information. X lives in the rural area near Atlanta (Suburbs of San Francisco) with his/her family. As part of our company's commuting/mobility benefit, X uses a company car (job train ticket) to commute to work. X is known for always wearing a solid (striped) shirt to work. X office is in our old (new) building on Heath Road."

Conclusion

The three studies in this dissertation shed light on the theoretical and emperical exploration of the influence of irrelevant information on leadership perceptions. Each study contributes to the overarching theme of the dissertation wherein, at first, authors try to look at the dilution effect of irrelevant information across who is being rated i.e., examining the influence of irrelevant information across race (White/Black) and past performance (Good/Average) of a certain individual. Following this, authors disentangle the influence of irrelevant information on perceptions of leadership behaviors and outcomes across descriptions of leadership attributes (positive or negative). To augment potential mechanisms at play, authors explore possible mediating processes that could potentially render to the influence of irrelevant information on leadership perceptions. In line with the extant literature on the effect of irrelevant information (Nisbett et al., 1981; Park & Rothbart, 1982; Kahneman & Tversky, 1973), results from the three essays reveal that irrelevant information can potentially shape leadership perceptions.

In the first essay, I together with my co-authors, look at the influence of irrelevant information on ratings of satisfaction with the leader and leadership effectiveness across individual's race and past performance. Findings of the study reveal that subjects provided more extreme ratings to individuals in the presence of irrelevant information. This phenomenon is generally referred to as enhancement effect (Linville, 1982; Butler & Lang 1991), opposite of dilution effect of irrelevant information whereby raters assimilate any ambiguous information about target individual in support of relevant information. Furthermore, results also demonstrated that influence of irrelevant information didn't vary across race and past performance of the individual.

In the second essay, I and my co-authors find support for the dilution effect of irrelevant information on perceptions of leadership behaviors and outcomes across descriptions of leadership attributes. More specifically, we find that in the existence of irrelevant information subjects' ratings were drawn towards midpoint of the scale such that: individual with positive leadership attribute description received reduced ratings as compared to individuals with negative leadership attribute description. These findings are in line with dilution effect which constitutes that presence of irrelevant information reduces similarity between subject's prototypes (e.g., leadership attributes) and outcome (e.g., leadership effectiveness) thereby resulting in less extreme ratings (Nisbett et al., 1981).

In the third essay, my coauthor and I try to disentangle the potential mechanisms through which irrelevant information influences the leadership perceptions. We proposed that the influence of irrelevant information on leadership perceptions might be due to its propensity to 1) enhance perceived complete image of an individual by providing additional cues to raters who might assimilate these cues in support of relevant information, 2) enhance cognitive load of raters by providing additional cues that might distract raters from relevant information, 3) reduce raters reliance on representativeness heuristics by providing individuating information that breaks the perceived similarity between rater's existing beliefs (leadership prototypes) and outcomes. Results find support for reduced perceived similarity across description of positive and negative leadership attributes.

Overall, the three essays provide evidence that irrelevant information poses serious challenges to ensuring optimal judgments. Notwithstanding the limitations of the studies, this dissertation acknowledges the importance of considering the potential influence of irrelevant information in shaping leadership perceptions thereby opening a new room of exploration for scholars dealing with contextual factors of Implicit leadership theories. Moreover, from practical point of view, it is also crucial for leaders' impression management whereby leaders

behave in a certain way to create and maintain desired perceptions of themselves (Gardner and Martinko, 1988; Bass 1985). In this sense, leaders should be vigilant of the individuating information they should reveal to subordinates to maintain their perception of an effective leader. Similarly, it is also imperative for organizations to understand the consequences of irrelevant information on decisions involving selection or promotion of individuals to leadership positions. These could include undermine fairness and equality at the workplace leading to discrimination and legal issues, eroded principles of meritocracy, decreased productivity and employee engagement. Therefore, organizations must find ways to mitigate the influence of irrelevant information on decisions involving selection and/or promotion of individuals to leadership positions.

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Paper	Title	Co-authors	Publication Status	Domain	Own Contribution	Co-author Contribution
1	The more the better? How irrelevant information influences leadership perceptions	Torsten Biemann[a] & Irmela Koch-Bayram[b]	Work in progress	Positioning	60 %	25 %[a], 15 %[b]
				Theoretical Framework	70 %	15 %[a], 15 %[b]
				Research Questions	70 %	15 %[a], 15 %[b]
				Empirical Design	60 %	20 %[a], 20 %[b]
				Data Collection	100 %	
				Data Analysis	90 %	5 %[a], 5 %[b]
				Discussion	70 %	15 %[a], 15 %[b]
				Other	20th EURAM Annual Meeting: Best Paper Award for the Leadership track of Organizations behavior strategic interest group	

Paper	Title	Co-authors	Publication Status	Domain	Own Contribution	Co-author Contribution
2	How relevant is irrelevant information? The effect of non-diagnostic information on leadership perceptions	Torsten Biemann[a] & Irmela Koch-Bayram[b]	Work in progress	Positioning	70 %	15 %[a], 15 %[b]
				Theoretical Framework	80 %	10 %[a], 10 %[b]
				Research Questions	70 %	15 %[a], 15 %[b]
				Empirical Design	70 %	15 %[a], 15 %[b]
				Data Collection	100 %	
				Data Analysis	90 %	5 %[a], 5 %[b]
				Discussion	70 %	15 %[a], 15 %[b]
				Other	82nd Annual Meeting of AOM: AOM Best Paper Proceedings	

Paper	Title	Co-authors	Publication Status	Domain	Own Contribution	Co-author Contribution
3	Exploring the Influence of Irrelevant Information on Leadership Perceptions – Disentangling the Mechanisms at Play	Torsten Biemann	Work in progress	Positioning	75 %	25 %
				Theoretical Framework	75 %	25 %
				Research Questions	75 %	25 %
				Empirical Design	70 %	30 %
				Data Collection	100 %	
				Data Analysis	90 %	10 %
				Discussion	80 %	20 %
				Other		