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Are All Voices Created Equal?: Conditional Indirect Effects of Directness of One's Voice on Perceived Uncertainty and Performance

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ARE ALL VOICES CREATED EQUAL?: CONDITIONAL INDIRECT EFFECTS OF
DIRECTNESS OF ONE'S VOICE ON PERCEIVED UNCERTAINTY AND PERFORMANCE

ARE ALL VOICES CREATED EQUAL?: CONDITIONAL INDIRECT EFFECTS OF
DIRECTNESS OF ONE'S VOICE ON PERCEIVED UNCERTAINTY AND PERFORMANCE

A dissertation submitted in partial fulfillment
of the requirement for the degree of
Doctor of Philosophy in Psychology

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ABSTRACT

The purpose of the current investigations was to examine the effects of the amount of voice one is given during decision-making on group behaviors. In particular, across two studies, participants were members of groups that needed to make a decision. In these situations, participants were provided varying degrees of voice during a decision-making process. Depending on the study, participants were either given a direct voice (Personal Voice), an indirect voice (Group Voice), a direct voice and an indirect voice (Composite Voice), or were not allowed a voice (No Voice). The results of Study 1 found that having Personal Voice or Composite Voice is related to increased perceptions of control, trust, and certainty, and is related to more predicted effort put forth for the group. In contrast, having Group Voice or No Voice was shown to be related to low levels of control, trust, and certainty. Furthermore, Group Voice was related to less predicted effort given toward achieving group goals. The findings of Study 1 suggest that the reason more voice is related to more positive group effort is because of how trust in the decision-maker is positively related to being more certain of what that decision-maker will do, which in turn predicts more certainty of how the decision will affect one's self as a member of the group in the future. The results of Study 2 found that Personal Voice was related to increased perceptions of voice and certainty, with Group Voice and No Voice related to low levels of certainty. Interestingly, Study 2 found that more voice given to group members was related to less behavioral output on behalf of the group. The relationship between having more voice and less effort was explained by perceptions of certainty. The findings of the current research suggest that groups must take care to ensure their members are treated in a fair manner because there are both benefits and limitations to providing members a voice during decision-making.

This dissertation is approved for recommendation
to the Graduate Council.

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DEDICATION

I dedicate this work to my parents who have supported me these past years and who have always believed in me.

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Are All Voices Created Equal?: Conditional Indirect Effects of Directness of One's Voice on Perceived Uncertainty and Performance

The purpose of the current set of investigations is to examine to what extent various forms of procedural justice affect group members' perceptions and beliefs in ways that either promote or hinder cooperation. Understanding the notion of justice has interested scholars for centuries (Colquitt, Greenberg, & Zapata-Phelan, 2005), and defining the concept of procedural justice has been an activity of psychological and organizational researchers for over 40 years. In those years, a vast literature has emerged providing evidence of the positive relationships procedural justice has with people's attitudes and behaviors, such as increased feelings of respect (Blader & Tyler, 2009; De Cremer & Tyler, 2005; Tyler & Blader, 2003; Tyler & Lind, 1992), strongly identifying with one's organization (Tyler & Blader, 2000), increased commitment to one's group (e.g., Jones, Scarpello, & Bergmann, 1999; Konovsky, Folger, & Cropanzano, 1987; McFarlin & Sweeney, 1992), feeling confident one is not being exploited by group authorities (Lind & Van den Bos, 2002), and behavioral engagement with one's group (e.g., cooperation; Tyler & Blader, 2003)

Given the vast amount of literature conducted in the past on procedural justice, it is important to be clear as to the definition/operationalization of this construct to be used in the current investigations. Procedural justice has previously been judged to be present and/or operationalized when procedures are consistent, unbiased, accurate, correctable, and/or ethical (for review see Colquitt et al., 2005). However, Tyler and Lind (2000) propose a broad definition of procedural justice in that justice exists if the measures and social processes by which decisions are made and/or the method by which rules are enforced are perceived to be fair. Within Tyler and Lind's (2000) definition, if procedural justice is said to involve *social processes by which decisions are made*, then the inclusion or exclusion of individual opinions during a group decision-making process may become important in people's perceptions of fairness. In other words, one may only perceive a sense of procedural justice as long as

group decisions were arrived at in an all-inclusive manner. Tyler and Lind's definition of procedural justice suggests that an important factor in individual's sense of justice may be whether or not one is given a voice during group decision-making.

Procedural Justice as Voice

Group members are said to experience a fair course of action when included in a group's decision-making process by being allowed to voice opinions, with the hope that the ultimate decision made may support one's interests and goals. This general definition of procedural justice will be the focus of the current investigations. This broad idea of having voice as a signal of justice was a major theme in the early organizational justice research. Early operationalizations of procedural justice involved manipulating whether participants had a sense that they were able to control the process by which they received outcomes. Having control is desirable due to the sense that one can receive what one desires, such as a group decision that benefits one's self-interests. Thibaut and Walker's (1975) seminal work focused on dispute resolutions and found those who were given a chance to contribute to the resolution process (i.e., voicing one's concerns to the decision makers) were more satisfied with the outcome of the decision than those who were not given a chance to contribute. Similar results have been found regarding satisfaction of decisions, in addition to increased acceptance of such decisions (e.g., Peterson, 1999; Ståhl, Van Prooijen, & Vermunt, 2004; Van den Bos, Wilke, & Lind, 1998), and willingness to then cooperate (e.g., Bornstein & Ben-Yossef, 1994).

If all affected parties involved are given a chance to contribute in the decision-making process, the outcomes for everyone may be more attractive and beneficial by way of the synthesis of all relevant information. Voicing one's concerns "serves the cause of equity because it gathers information directly from the parties to the dispute" (Tyler & Lind, 2000, p. 70). Those who voice their opinions are said to have both "process control" and "outcome control," in that they hold an amount of sway over the decision making process and to subsequently help determine their own outcomes by way of the

decisions made, respectively (Shapiro & Brett, 2005).

Although opportunities for having a direct voice are quite common, they do not represent all possible situations under which voice may be given. Equally important situations exist where direct member input is unlikely or impossible, such as during intergroup decision-making (e.g., political-party policy making at the national level). In those circumstances, a group representative of member interests is given a voice during decision-making. Giving each individual group member a direct voice in decisions in such a situation may be impractical and unmanageable. However, individual members may still believe their interests are taken into account in these circumstances by having an *indirect* voice during the process (Terwel, Harinck, Ellemers, & Daamen, 2010). Therefore, it is important to make a conceptual distinction between two methods of experiencing voice: personal voice and group voice.

Personal Voice or Group Voice

What has consistently been defined as voice (e.g., Shapiro & Brett, 2005; Thibaut & Walker, 1975) can more precisely be termed *personal voice* (Terwel et al., 2010): every person can have a direct say in group decisions. Personal voice has its limitations. If personal voice was provided to members of a relatively large group, then the decision-making process may quickly suffer. As the size of the group increases, so does the number of varying self-serving opinions needing to be accounted for, resulting in the decreased likelihood of reaching a satisfying decision for all involved. Members may also not be able to experience personal voice due to time constraints; large groups have too many members voicing opinions to the point time runs out, and a decision must be made before one's personal voice can be heard. Additionally, members of a large group may hold dissimilar beliefs and goals, thus naturally dividing into subgroups supporting the various viewpoints on the matter at hand; the initial intragroup decision-making process may quickly become more *inter(sub)group*. A decision may never be reached due to members vehemently supporting their own opinions at the expense of

compromise (perhaps a form of subgroup-ingroup bias; Brewer, 2007; Hewstone, Rubin, & Willis, 2002; Scheepers, Spears, Doosje, & Manstead, 2006). Consequently, the decision-making process may be interrupted by such tangential, self-serving competition, and members may never be able to have the opportunity to have direct input.

Terwel et al. (2010) studied the concept of *group voice* to understand how providing the opportunity for voice can work within groups where personal voice is not an option (e.g., with relatively large numbers of members competing to be heard). Terwel et al. define group voice as the “opportunity for interest groups to express their opinions in decision-making processes” (p. 174) on behalf of a larger population that is unable to have a direct voice. In other words, a select few are given a voice to express the opinions on behalf of the needs and interests of the many.

Such representation can take various forms, allowing for the experience of group voice to occur in a variety of circumstances. Fellow ingroup members may serve on a committee to make decisions within the group. Group voice may also exist if a group authority expresses the interests of the group to a mediating third-party during intergroup interactions. Common to both intergroup and intragroup decision-making is the idea that individual group members’ voices being expressed are indirect, or *implied*, for the individual members (Terwel et al., 2010). Despite Terwel and colleagues’ focus on a group of representatives providing a voice for a sub-group population, it is possible the psychological experience of group voice may be more easily understood as believing one's interests are being voiced although not being able to provide personal input. Therefore, to more easily test the personal effects of group voice in the current investigations, the presence of a single individual serving as one's representative voice was used.

Composite Voice. A variation on group voice may involve individual group members experiencing personal voice prior to, and in conjunction with, experiencing group voice (a hybrid of the two forms). Terwel et al.’s (2010) definition of group voice excludes any direct input individual group

members may give in order to influence the representative's voice. In reality, it may be much more common for all group members (representative included) to meet and allow every member an opportunity to voice his or her opinions directly to the representative, who would then be sent to the decision-makers to voice the now agreed upon opinion of the group as a whole. Therefore, the experience of group voice may sometimes be preceded by an experience of personal voice (i.e., *composite voice*). The question remains as to which experience of voice, personal or group, may dominate the effects on perceptions, attitudes, and behaviors, or would emergent effects be found based on the interaction of the two distinct forms of voice? Composite voice may represent a middle-ground, with the positive and negative attributes of both personal voice and group voice interacting to create a unique voice effect on behavior. This additional form of voice will be tested in comparison to both personal voice and group voice.

Effects of Group Voice

The various forms voice may take can result in distinct psychological experiences. Terwel et al.'s (2010) notion of group voice may be unique in the sense that despite having one's interests championed (if merely indirectly), the psychological consequences may be similar to that of when one's interests are actively disregarded. In particular, group members experiencing group voice are unlikely to feel they have any direct control over their outcomes. Ultimately a group authority, or some form of representation, may be the ultimate decision-maker when a choice needs to be made within one's group or among multiple groups. The power of personal voice lies in the quality of how one is treated (e.g., respect) being communicated by a decision maker hearing one's opinion on a matter. Group voice may be unlikely to convey any such respect from decision makers because of the lack of opportunity to express opinion and/or a diffusion of relational information. Rather than personal voice signaling that one is being treated fairly one-on-one (e.g., Lind, Kanfer, & Earley, 1990), group voice signals that any fair treatment may be a compromise (i.e., averaged) and distributed across all members, thus diffusing

the impact of experiencing this form of procedural justice.

Despite the fundamental differences between personal voice and group voice, Terwel et al. (2010) found that group voice was preferred more than not receiving voice at all. Terwel et al. conducted three studies testing the effects of group voice, compared to experiencing no voice, on group members' perceptions of fairness, perceived trust, and acceptance of the decision having to be made. Across these studies, Terwel et al. manipulated whether participants read scenarios in which a special interest group for participants' beliefs (i.e., pro carbon dioxide capture and storage technology; CCS) and a special interest group contrary to participants' beliefs (i.e., industrial organization against CCS) were either both given equal amounts of group voice or no group voice at all, or that both groups were given unequal amounts of group voice (i.e., for-CCS interest group gets group voice and against-CCS interest group does not get group voice, or vice versa) during a multi-group decision-making process regarding policy for the use of CCS.

Results suggest that the more group voice one perceived, the fairer the decision-making process was perceived to be, the more trustworthy was the decision maker (also found to be a mediator), and the more acceptance one had of the decision (Terwel et al., 2010). The findings suggest that a sense of group voice, compared to not having a voice, is able to predict increased levels of a particular form of cooperation because one trusts the decision-maker. The mediating effect of trust mirrors similar results consistently found in the procedural justice literatures (e.g., Colquitt, LePine, Piccolo, Zapata, & Rich, 2012; De Cremer & Tyler, 2007; Folger & Konovsky, 1989; McFarlin & Sweeny, 1992; Tyler, 1989), suggesting that group voice may represent a special route one may take to experience procedural fairness. However, a key variable that personal voice and group voice may differentially affect is one's perceived level of certainty.

Certainty

Group members who are given personal voice value such an opportunity because there is an

increased chance to persuade the decision maker to come to a conclusion in the greatest interest of one's self (e.g., Walker, LaTour, Lind, & Thibaut, 1974). Outcomes may be perceived to be more certain if one feels capable of directing the decision being made towards one's own benefit. The level of outcome certainty (e.g., the decision outcome; personal resources) one may feel when provided with group voice may be relatively low because "they are not personally able to exert control" (Terwel et al., 2010, p. 174). With a representative reporting an opinion, the voice of the individual member is taken out of the equation. Terwel and colleagues recognize complete removal of one's voice from a decision-making process is unlikely (i.e., composite voice). However, Terwel et al. argue that the relational and instrumental effects of group voice are "weakened" compared to those of personal voice due to the implied nature of group voice processes. Terwel et al. conclude that group voice "at best, remains a form of remote control for individual group members" (2010, p. 174) and involves a diminished guarantee that one's personal interests may be satisfied compared to if one experiences personal voice (e.g., a representative negotiates the best possible outcome while still not being preferred by every individual member). In other words, group voice may not be able to ensure a certain level of justice compared to when experiencing personal voice.

Being given a voice may serve to increase the predictability of one's outcomes, regardless of whether being in favor of or against one's own interests (Desai, Sondak, & Diekmann, 2011; Van den Bos & Lind, 2002). If denied the opportunity to have voice, personal outcomes may remain highly uncertain and subject to the influence of others who may not have one's best interests at heart. General uncertainty, or uncertainty about the nature or structure of one's social environment or group, has been shown to account for fairness judgments (e.g., De Cremer, Brebels, & Sedikides, 2008). Summarizing Van den Bos and Lind (2002), Desai et al. (2011) argue that "fairness can increase the perceived predictability of future outcomes and thereby reduce uncertainty" (p. 34). Fairness heuristic theory (Lind, 2001; Van den Bos, 2001) suggests that employees use fairness perceptions to cope with

uncertainty, and uncertainty management theory (Lind & Van den Bos, 2002; Van den Bos & Lind, 2002) argues that fair treatment by one's group lessens group members' uncertainty about group authorities' behaviors (Desai et al., 2011). Fairness has even been found to predict not only a general sense of being uncertain or lack of control (e.g., Van den Bos, 2001) but also uncertainty about one's own mortality or one's personal life (Van den Bos & Miedema, 2000). Desai et al. (2011) found that perceived procedural justice is significantly and negatively correlated with perceived uncertainty, operationalized as the level of knowledge of future outcomes resulting from the decision-making process (e.g., "I know exactly how much salary hike I will get at my next evaluation", "I do not know how much annual bonus I will receive this year").

In their third experiment, Desai et al. (2011) manipulated procedural justice by allowing or denying the opportunity for personal voice. Participants were either given "take-it-or-leave-it" ultimatum (i.e., no voice) job offers or were allowed to negotiate (i.e., voice a counter-offer) with regards to earning points by completing mazes for one of two hypothetical companies. Afterward, participants completed a series of questionnaire items prior to performance on a maze completion task. In the series of questions, perceived uncertainty was measured as a possible mediator of the effects of procedural justice, defined as the perceived fairness of situation, on performance (number of mazes completed). Uncertainty in this study was operationalized as a general uncertainty of the current situation and predictability of the future (e.g., "I can predict what will happen next", "How uncertain are you about what is happening in this situation"). Results supported the hypothesis that the amount of uncertainty experienced in one's environment is reduced when belief in the fairness of the situation increases. Additionally, performance was affected in part by participants' perceived procedural justice by way of the increase or decrease of uncertainty.

Because Desai et al. (2011) manipulated being allowed to have a voice or not, their results suggest that experiencing personal voice predicted higher levels of performance (i.e., more behavioral

output in service of a group goal) because such a fair situation positively affects how certain the situation was believed to be. Desai et al. tested the differential effects of procedural justice after having just experienced either personal voice or no voice at all (e.g., imposed). With group voice, there may be a level of uncertainty at similar levels to not having any voice, given the lack of direct input on the part of the individual. In this sense, group voice may operate at the same level of having no voice when compared to being given personal voice.

A consequence of the lack of certainty one experiences with group voice may be that positive attitudes and productive behaviors toward one's group may suffer and/or occur relatively less frequently or at a lesser intensity; uncertainty may have a debilitating effect (Desai et al., 2011). For example, performance may comparatively suffer in those experiencing group voice rather than personal voice because productive, cooperative group behaviors may be seen as too risky (i.e., costly to one's self-outcomes) when there are low levels of perceived certainty regarding the personal consequences of having only the representative's voice being heard during the decision-making process. The representative's opinion may be entirely self-serving and in no way reflect the best interest of the self or the group as a whole; decisions being made may be biased towards the representative's desires and needs.

In a similar fashion to fairness heuristic theory (Lind, 2001; Van den Bos, 2001), Colquitt et al. (2012) propose that trust serves as an uncertainty reducing mechanism, helping to explain why justice routinely predicts job performance. Specifically, in a field study in a hospital system, Colquitt et al. found that a procedural justice factor (including items probing one's opportunities to express one's views and influence decisions) positively predicted one's level of cognition-based trust (e.g., dependability, reliability) in one's supervisor, reflecting similar results to those found in Terwel et al. (2010). This trust was then found to negatively predict perceived uncertainty, which then negatively predicted job performance. Colquitt et al.'s (2012) notion of trust predicting uncertainty may be the

exact mechanism that drives members' perceptions of uncertainty during group voice exchanges compared to those that involve personal voice. Having to work with a representative during group voice situations may call to mind one's level of trust of this individual (e.g., DeCremer & Tyler, 2007; McFarlin & Sweeny, 1992) and how well he or she can truly represent one's own voice. Group voice may represent a low trust situation, particularly if the representative is not chosen by the members of the group. Therefore, Colquitt et al.'s (2012) finding that increased trust predicts high levels of certainty seems to be the key relationship needed to understand why group voice may predict low levels of certainty.

Certainty may have unique effects on group-directed behavior. Increased levels of perceived situational uncertainty may signal to individual members that their future outcomes will be limited or unfulfilling, regardless of one's level of performance; high performance may not be able to overcome the burden of having to work in a group relegated to operating under the less-than-ideal decision that was made without any input other than that of the representative. Uncertainty's effect on behavior may be multifaceted, stemming from the members being unsure as to whether the decision made was as good as it could have been (i.e., be made more in one's own favor). Performance may then decrease during these times of lowered decision-certainty because group members may need to restrict or redirect their attention away from successfully performing a task to thoughts of contingency plans and ways to protect themselves and their already fragile and limited resources (Mayer & Gavin, 2005). Similarly, McAllister (1995) suggests that uncertainty in a situation creates a need to monitor one's surroundings and behave defensively in order to protect oneself and one's interests; performance suffers due to the stressor-like quality by which uncertainty is perceived (e.g., Sonnentag & Frese, 2003). In other words, certainty of the outcome of the decision may predict perceived certainty of one's future outcomes. Whether these instances of lowered outcome-certainty may then have a powerful, negative influence on one's behavioral output is tested here as well.

Moderators

There are additional factors that may need to be accounted for to fully understand the psychological impact of the various forms of voice one may experience, group voice in particular. Understanding the relationship between the individual member(s) and the representative may be crucial. Trust in the representative or authority (e.g., DeCremer & Tyler, 2007; McFarlin & Sweeny, 1992) and the perceived similarity among member and authority attitudes and motivations (i.e., ingroup bias; Hewstone et al., 2002; Smith, 1940; Stürmer & Snyder, 2010) may interact with the experience of group voice to predict behavior. Furthermore, whether the representatives were selected by the members themselves (i.e., elected) or the representatives were chosen on behalf of members (by a third-party or randomly chosen) may affect individual member's trust and perceived similarity towards the representative and thus positively or negatively affect behavior. The effect of how the representative is chosen may further depend on one's commitment to the group (e.g., social identity; Tajfel & Turner, 1979). It is beyond the scope of the current investigations to test these potentially influential factors. However, some potential moderating factors will be tested in the current investigations.

Group Size. One factor that may affect the experiences of all forms of voice involves the size of the group involved in the decision making process. One must ask how many voices are being heard by the decision-makers. It was discussed previously the impact group size may have on one's experience of voice, including but not limited to the realization that the final decision made may be less than satisfactory to one's self-interests given the need to account for a multitude of varying opinions. The more voices being heard during a decision-making process, the less important an individual voice may be (i.e., social impact theory; Latané, 1981), and the larger the group, the less likely all voices will ultimately be heard during group decision-making (e.g., Waller, Hope, Burrowes, Morrison, 2011).

With the diminished impact of one's voice, the predictability of one's future outcomes may decrease;

the belief that a decision will be made in one's favor will be reduced with the inclusion of more "noise" (i.e., other voices) in the situation.

Furthermore, one's perceived level of certainty may differ depending upon which circumstances personal voice and/or group voice are experienced (e.g., varying group sizes). If someone is a member of a small group and experiencing personal voice, perceptions of certainty may be relatively high compared to another person who is a member of a large group and is experiencing personal voice. Although both can be said to have experienced personal voice, the increased number of voices heard in the situation of the latter individual may subsequently lower his or her perception of certainty of the situation and/or his or her outcomes.

The same conditional experience is expected to occur for those experiencing group voice, where the amount of certainty may be even less due to having to experience decisions being made solely through one's representative. A variation of group voice in which one first experiences personal voice (i.e., composite voice) may also lead to differing levels of perceived certainty compared to pure forms of either personal voice or group voice. A group member who first experiences personal voice may have a sense of relatively high certainty of the situation as a whole, but when the final decision is in the hands of another person certainty may decrease, perhaps to levels that negate the prior experience of personal voice.

Risk Aversion. As discussed previously, the level of certainty one experiences is expected to predict the amount or quality of group behavior. This predicted relationship between perceptions of certainty and performance behaviors may be moderated by one's willingness to embrace uncertainty, or the extent to which one is a risk seeker or risk averse. For example, uncertainty may stimulate performance for those who enjoy the experience of risk (Desai et al., 2011). Risk aversion can be understood as an individual difference variable representing one's tolerance or avoidance of uncertainty and the unpredictability of one's possible outcomes (Desai et al., 2011; March, 1996). In comparison

to research on procedural justice suggesting uncertainty to be an unwanted characteristic of the situation (e.g., Lind, 2001; Lind & Van den Bos, 2002; Van den Bos, 2001; Van den Bos & Lind, 2002), additional work has suggested that the desire for uncertainty may be variable across individuals, with some finding risk appealing (Maehr & Videbeck, 1968) while others find risk unappealing (Halek & Hisenhauer, 2001). Further research suggests that level of risk aversion has differential effects on organizational behaviors (e.g., Gomez-Mejia & Balkin, 1989; Maehr & Videbeck, 1968). Level of risk aversion has been found to interact with procedural justice (Colquitt, Scott, Judge, & Shaw, 2006), with high risk averse individuals experiencing procedural justice increasing performance toward the organization while low risk averse individuals not increasing performance. High risk averse people do not care for uncertainty, and Colquitt et al. argued that participants were paying attention to signals of fairness (e.g., having voice) because experiencing fairness could help “manage” or control one’s level of uncertainty (Desai et al, 2011).

With this line of reasoning, it may be predicted that not only will risk averse individuals like experiencing personal voice in order to reduce uncertainty, but risk seeking individuals will dislike the experience of personal voice (a risk aversion x voice interaction). This predicted effect has been suggested by past work. The desire for voice has been shown to be moderated by the value one places on having voice (Avery & Quiñones, 2004). A reversal of the fair process effect may occur if risk seekers are said to place little value on voice while the risk averse place much value on having a voice. This reversal of the fair process effect is precisely what Desai et al. (2011) found, whereby risk averse individuals actually reacted positively to not experiencing personal voice. Furthermore, one’s level of risk aversion seemed to moderate the indirect effects of certainty on the relationship between voice and performance, supporting the argument that certainty is an important factor at various levels of risk aversion.

Desai et al. (2011) provide evidence that when there is a high level of certainty (due to

experiencing personal voice), high and low risk averse people behave differently, with high risk averse individuals performing better than low risk averse individuals on a group-based task. When certainty is low due to the lack of opportunity for personal voice (i.e., no voice), there was no differences found in performance. Given the significant positive relationship found between personal voice and certainty, the lack of difference in performance found under low certainty suggests that having imposed decisions (i.e., no voice) does not have a strong effect on attitudes and/or behavior. However, the question remains as to whether experiencing group voice, argued to also deter certainty, will exhibit the same pattern of results similar to when decisions are merely imposed. The primary goal of the current investigations is to examine whether a different pattern of results will emerge that contrast with those found by Desai et al. Group voice may provide a better “fit” for low risk averse individuals, resulting in an increased level of positive behaviors compared to those high in risk aversion.

Clearly risk aversion is a conceptually important variable to consider when studying procedural justice’s effect on behavior. However, Desai et al. (2011) were limited in their testing of voice’s effect on behavior by relying on a manipulation of personal voice only. The question remains as to whether risk aversion and its differential effect on certainty’s influence may depend on the form of voice experienced. Given group voice’s inherent level of certainty (Terwel et al., 2010) compared to personal voice, group voice may be disliked less by risk seekers, while previous work suggests that personal voice may be preferred by the risk averse (e.g., Avery & Quiñones, 2004; Desai et al., 2011). Rather than risk seekers disliking voice’s effect of promoting certainty, risk seekers may simply dislike one form of voice. Therefore, one of the current investigations seeks to answer the question as to whether the attitudes and behavior of individuals both high and low on risk aversion may be positively affected by experiencing the “correct” kind of procedural justice and the resulting increase or decrease of certainty (i.e., conditional indirect effects, or moderated mediation; Preacher, Rucker, & Hayes, 2007). In other words, does voice’s effect on behavior, through perceived certainty, depend on one’s

level of risk aversion?

Hypotheses

Given the previous arguments, I formally propose three main hypotheses. First, personal voice will result in increased perceptions of voice, control, and certainty. These effects may be qualified by the number of voices being heard. Voice, control, and certainty will be lowest in the group voice condition when there are large numbers of people involved in the decision, while voice, control, and certainty will be highest in the personal voice condition when there are relatively few people involved in the decision-making process. An additional qualifier of voice's effects may be one's level of risk aversion. Group members high in risk aversion given a personal voice and group members low in risk aversion given group voice may put forth more effort towards their groups compared to when those high in risk aversion are allowed group voice and low risk averse individuals are given personal voice.

Second, the relationship between voice and behavioral outcomes will be mediated by perceptions of certainty. The experience of personal voice, compared to group voice, will predict increased perceptions of certainty, which will in turn predict increased positive group-based effort and/or performance on a group-based task.

Third, an individual's risk aversion will moderate this mediated relationship. High risk averse individuals experiencing low certainty and low risk averse individuals experiencing high certainty will predict relatively low levels of performance on a group-based task, while high risk averse individuals experiencing high certainty and low risk averse individuals experiencing low certainty will lead to relatively high levels of performance on a behavioral task. Low risk averse people will respond negatively and have lower performance when experiencing more voice than when experiencing less voice via the increase of certainty, whereas high risk averse people will respond positively and have higher performance when experiencing more voice than when experiencing less voice via the increase of certainty.

Study 1

The goal of this study was to test the relative effects different forms of voice may have on various process and outcome variables, including perceived trust and certainty. Participants were given a brief scenario describing a situation in which they were a member of a group that needed to make a decision. Across conditions, participants either experienced personal voice, group voice, composite voice, or a no voice control. Furthermore, the level of impact of one's voice (in comparison to the voices of other group members) was varied by manipulating the number of additional voices being heard. The current study was a 4 (Voice: Personal, Composite, Group, No Voice) x 2 (Group Size: 2 versus 20) between-participant factorial design.

Participants

One-hundred and sixty undergraduate students (20 participants per condition; demographic data was not collected) from the University of Arkansas participated in this study for course credit.

Procedure

Participants entered the lab and were given an informed consent form to read and complete. Afterward, participants were given a brief scenario adapted from De Cremer, Tyler, and den Ouden (2005). The scenario included the following instructions: "Read this scenario as if you are experiencing the situation yourself." The scenario asks participants to picture themselves as an employee of a company that produces and sells computer games and software. In this company, employees work together in teams. At this point, the team structure was presented, and participants were to believe they belonged to a particular sized group, depending on condition (*2-member group*: "Your team consists of you and one other employee"; *20-member group*: "Your team consists of you and nineteen other employees").

Next, it was made clear that a decision had to be made by the company regarding whether or not to take a new computer game into production. To make the outcome of this decision impactful on

employee outcomes, it was explained that taking the game into production may be risky: if the game was a success, employees would get a large bonus, but if the game was a failure, there would be firings. The intention of adding this information was to increase one's baseline desire to have a voice in the final decision.

Finally, the voice manipulation was presented. Depending on the type of voice experienced, participants read one of four descriptions of how the company's boss wanted to use the opinions of employees during the decision-making process (*Personal Voice*: "The company's boss asks for your opinion..."; *Group Voice*: "The company's boss asks for your fellow employee's opinion, to serve as a representative of the opinions of your entire team... You did not have a chance to discuss your opinion with your team's representative"; *Composite Voice*: "The company's boss asks your fellow employee's opinion, to serve as a representative of the opinions of your entire team... You discussed your opinions with your team's representative"; *No Voice*: "The company's boss does not ask for your opinion or your fellow employee's opinion during the decision-making process; the boss makes the decision alone").

Participants then completed a series of questions with the purpose of assessing the potential effects voice has on a variety of employee's perceptions and expectations. Participants were asked to what extent they were allowed to voice their opinion and whether they have control over the situation. Next, participants responded to two items adapted from McAllister's (1995) cognition-based trust scale (Colquitt et al., 2012). The two trust items are: "I see no reason to doubt my boss' competence to make the right decision" and "I can rely on my boss not to make the wrong decision." Participants' responses to the two trust items were averaged to form a composite trust score (Cronbach's alpha = .77).

Participants then endorsed the extent to which they would feel certain about the final outcome of the decision to put the game into production. Furthermore, participants indicated whether they

would work hard on producing the new computer game and how likely they would quit the job. Responses for the previous items were on a seven-point scale with higher values representing high agreement. Participants were also asked the extent to which they expected either receiving the large bonus or being fired would occur in the future (-7 = “I will be fired”, 0 = “Unsure about what will happen”, +7 = “I will receive the large bonus”); recoded on a 15-point scale where low numbers representing certainty of failure and high numbers representing certainty of success). The previous item was included as a measure of one's certainty of the consequences of the decision being made, with a belief in receiving the bonus or being fired reflecting certainty in receiving either positive or negative consequences, respectively. Once the items were completed, participants were debriefed and released from the session.

Results and Discussion

Primary Analyses. To test Hypothesis 1, that the directness of voice one experiences differentially affects one's perceptions of certainty and group-based behavior depending on the size of the group involved in the decision-making process, multiple 4 (Voice: Personal, Composite, Group, No Voice) x 2 (Group Size: 2, 20) between-participant ANOVAs were run on the various dependent variables (see Table 1 for means and standard deviations).

For participants' responses to whether they were allowed to voice their opinion, a significant main effect for Voice was found, $F(3, 152) = 40.21, p < .001, \eta_p^2 = .44$. Tukey HSD indicated that the Personal Voice ($M = 6.28$) and Composite Voice ($M = 6.00$) conditions were not different from each other, while the No Voice ($M = 3.78$) and Group Voice ($M = 2.95$) conditions were not different from each other. Those in the No Voice control group and the Group Voice group felt they had less voice than those in the Composite or Personal Voice groups. All other comparisons were found to be significantly different. There was not a significant main effect for Group Size, $F(1, 152) = .34, p > .05, \eta_p^2 = .00$, or for the Voice x Group Size interaction, $F(3, 152) = .59, p > .05, \eta_p^2 = .01$.

Table 1

Means and Standard Deviations of Participants' Responses: Study 1 (N = 160)

DV	Group Size	Voice			
		No Voice	Group Voice	Composite Voice	Personal Voice
Voice?	2	4.05 (2.28)	3.05 (1.76)	5.80 (1.24)	6.40 (.82)
	20	3.50 (2.24)	2.85 (2.06)	6.20 (.95)	6.15 (.88)
Control?	2	2.70 (1.26)	2.90 (1.48)	3.80 (1.36)	4.35 (1.18)
	20	1.95 (.83)	2.35 (1.76)	3.70 (.86)	4.00 (1.08)
Trust?	2	3.98 (1.46)	3.73 (.97)	4.75 (1.22)	4.33 (1.35)
	20	3.80 (1.29)	3.75 (1.31)	4.28 (.91)	4.75 (.94)
Certain Decision?	2	4.20 (1.36)	3.55 (1.23)	4.20 (1.20)	4.95 (1.50)
	20	3.70 (1.53)	4.00 (1.62)	4.35 (1.31)	4.95 (1.43)
Certain Outcome?	2	9.05 (1.47)	8.45 (1.50)	9.25 (2.05)	9.80 (1.96)
	20	8.70 (2.03)	9.50 (2.19)	10.10 (1.94)	10.35 (2.58)
Work hard?	2	6.25 (.91)	6.05 (1.05)	6.35 (.81)	6.70 (.57)
	20	6.50 (.61)	5.95 (1.39)	6.55 (.69)	6.55 (.51)
Quit?	2	2.20 (1.24)	2.05 (1.05)	1.85 (.88)	1.65 (.88)
	20	2.25 (1.02)	2.30 (1.26)	2.15 (.81)	1.80 (1.01)

For participants' responses to whether they had control over their situation, a significant main effect for Voice, $F(3, 152) = 19.71, p < .001, \eta_p^2 = .28$, was found. Tukey HSD indicated that the No Voice ($M = 2.33$) and Group Voice ($M = 2.63$) conditions were not significantly different from each other, and the Composite Voice ($M = 3.75$) and Personal Voice ($M = 4.18$) conditions were not different from each other; all other pairwise comparisons were significantly different. Participants either having no voice or experiencing group voice felt they had less control than participants experiencing either composite voice or personal voice. A significant main effect for Group Size, $F(1, 152) = 4.82, p < .05, \eta_p^2 = .03$, was found. Participants in the 2-person group ($M = 3.44$) felt they had more control over their situation than those in the 20-person group ($M = 3.00$). Finally, there was not a significant Voice x Group Size interaction, $F(3, 152) = .49, p > .05, \eta_p^2 = .01$.

For participants' trust in the company's boss, a significant main effect for Voice was found, $F(3, 152) = 4.82, p < .01, \eta_p^2 = .09$. Tukey HSD indicated that the No Voice ($M = 3.89$) and Group Voice ($M = 3.74$) conditions were not significantly different from each other. The No Voice condition was not different from the Composite Voice ($M = 4.51$) and Personal Voice ($M = 4.54$) conditions, which were not different from each other. Participants experiencing group voice trusted their boss less than participants experiencing either composite voice or personal voice. There was not a significant main effect for Group Size, $F(1, 152) = .07, p > .05, \eta_p^2 = .00$, or a significant Voice x Group Size interaction, $F(3, 152) = .99, p > .05, \eta_p^2 = .02$.

For participants' certainty about the final outcome of the decision, a significant main effect for Voice was found, $F(3, 152) = 5.44, p < .001, \eta_p^2 = .10$. Tukey HSD indicates that the Group Voice ($M = 3.78$) and No Voice ($M = 3.95$) conditions were significantly different from the Personal Voice ($M = 4.95$) condition. None of these was significantly different from the Composite Voice ($M = 4.28$) condition. Participants who were given a personal voice were more certain about the outcome of the decision than those either given group voice or no voice at all. There was not a significant main effect

for Group Size, $F(1, 152) = .01, p > .05, \eta_p^2 = .00$, or a significant Voice x Group Size interaction, $F(3, 152) = .80, p > .05, \eta_p^2 = .02$.

For participants' certainty of the consequences of the decision, a significant main effect for Voice was found, $F(3,152) = 3.31, p < .05, \eta_p^2 = .06$. Tukey HSD indicated that the Personal Voice ($M = 10.08$) condition was different from the No Voice ($M = 8.88$) condition, while not significantly different from Composite Voice ($M = 9.68$) and Group Voice ($M = 8.98$) conditions. Furthermore, Composite Voice was not different from either Group Voice or No Voice. Finally, Group Voice and No Voice were not different from each other. Participants who were given more of a personal voice than others were more certain that the game would be a success and they would receive the bonus relative to those who did not have a voice. There was not a significant main effect for Group Size, $F(1,152) = 2.77, p > .05, \eta_p^2 = .02$, or a significant Voice x Group Size interaction, $F(3, 152) = .96, p > .05, \eta_p^2 = .02$.

To assess whether experiencing more or less direct voice in differing sized groups affects group members' group-based behavior, a Voice x Group Size ANOVA on participants' expected effort in working hard on producing the computer game found a significant main effect for Voice, $F(3,152) = 3.72, p < .05, \eta_p^2 = .07$. Tukey HSD indicate that the Group Voice ($M = 6.00$) condition was not different from either the No Voice ($M = 6.38$) or Composite Voice ($M = 6.45$) conditions. However, Group Voice was significantly different from the Personal Voice ($M = 6.63$) condition. Although the means for all conditions were high on the scale, participants experiencing group voice believed they would put forth less effort than those experiencing personal voice. All other comparisons were not significant. There was not a significant main effect for Group Size, $F(1, 152) = .13, p > .05, \eta_p^2 = .00$, or a significant Voice x Group Size interaction, $F(3, 152) = .56, p > .05, \eta_p^2 = .01$.

Finally, for participants' belief that they would quit the job, there were no significant main effects for either the Voice, $F(3, 152) = 1.93, p > .05, \eta_p^2 = .04$, or Group Size, $F(1, 152) = 1.33, p >$

.05, $\eta_p^2 = .01$, conditions, and the Voice x Group Size interaction was also not significant, $F(3, 152) = .12, p > .05, \eta_p^2 = .00$. Neither the type of voice experienced nor the size of one's group seemed to effect participants' belief they would want to quit the job.

The findings of the current study suggests that the group voice utilized in this study does not represent an opportunity to experience voice. Group voice consistently appears to be distinct from personal voice. Those who experienced personal voice reported experiencing more voice (Shapiro & Brett, 2005) and control (Terwel et al., 2010; Thibaut & Walker, 1975) than those with either an indirect voice or no voice. Those with personal voice also expressed more certainty than those experiencing either group voice or no voice (Desai et al., 2011; Van den Bos & Lind, 2002). Additionally, those that experienced personal voice were able to trust more than those experiencing either group voice or no voice, supporting Colquitt et al.'s (2012) model and further suggesting the similar experience of group voice and no voice.

The results also showed that participants believed they would put forth less effort for the group when experiencing group voice compared to personal voice. In other words, those experiencing group voice seem to be less motivated to benefit the group compared to those experiencing personal voice. Consistent with past work on voice (e.g., Lind et al., 1990), experiencing personal voice positively affects various psychological experiences and motivates positive group behaviors. However, there did not appear to be a difference between the projected effort for those in the Personal Voice and No Voice conditions. This is inconsistent with a vast literature finding an increase in effort and behavior when experiencing personal voice compared to no voice (e.g., Bornstein & Ben-Yossef, 1994; Desai et al., 2011; Thibaut & Walker, 1975).

This similarity in expected effort between those experiencing personal voice and no voice may be due to the commonality of the situation used to represent the lack of voice. Specifically, participants in the No Voice condition were led to believe that the boss was to make the decision without employee

input. The boss may represent a reliable, competent, and informed person to make the decision. The non-significant difference in participants' trust in the boss between the No Voice and Personal Voice conditions support this possibility. Therefore, despite the No Voice group recognizing they did not have a voice and believing they lacked control and certainty, trust in the boss may compensate. The significant difference in trust between the Personal Voice and Group Voice groups may suggest that having a singular representative express an opinion may bias the boss to make a poorer decision that does not have the entire group's interests at heart. Consequently, participants predicted they would put forth slightly less effort when the boss could have been corrupted by a single, biased individual.

Unique to this study was the inclusion of a composite form of voice, where one experiences personal voice prior to group voice. The results suggest that in most cases, the experience of composite voice is similar to that of personal voice and yet distinct from group voice: the heightened sense of fairness, control, and certainty that comes from personal voice is maintained after one turns over voice to another. This suggests that the experience of personal voice trumps that of group voice, further differentiating the two constructs. Taking the findings concerning the various types of voice as a whole, the assertions Terwel et al. (2010) made about group voice were generally supported, in that those experiencing group voice have less control. On the other hand, Terwel et al.'s findings that group voice can fulfill the relational needs of group members' above and beyond those not having a voice was not found, in the case of less trust in the decision-maker. A possible explanation for this may be that this was a survey in which participants responded to a hypothetical scenario.

Finally, the current study failed to find any group size effects: the size of the group did not matter when experiencing different forms of voice. It has been suggested that the size of a group can be important in affecting one's perceived importance (Latané, 1981) and the likelihood one's voice would even be heard (Waller et al., 2011). The largest group size chosen for the current experiment (i.e., 20 people) may have been of insufficient number to signal to participants the fulfillment of their

needs was in jeopardy. An additional follow-up investigation in which group sizes were set at 5 people or 50 people did find that group size interacted with the experience of voice (Schroeder, Poepsel, & Clay, 2013) to affect perceptions of the amount of voice one has and how fair the decision-making process is, with more perceived voice and higher perceptions of fairness for those with more direct input in the decision in small groups. Waller et al. (2011) found evidence that being a member of a relatively large decision-making group (i.e., 12 members) lead to lowered perceptions of conversational participation (not actual participation) and satisfaction compared to when group members first belonged to smaller subgroups before returning to the larger group. Smaller groups may simply be a source of perceptual efficacy rather than true decision-influence. Future work on the effects of group size would do well to specify the limitations on the increase in group sizes to help establish any relationship among the various forms of voice one may experience.

Correlations and Mediation. The previous results paint a consistent picture regarding the distinction between the experience of having more or less direct voice. To test Hypothesis 2, that certainty mediates the relationship between the directness of one's voice and group behavior, correlational analyses were run among participants' responses to the various questionnaire items and the experimental conditions. The primary dependent variable of interest was participants' expected effort given for the benefit of the group. The previous analyses indicated that more effort was expected to be given when experiencing personal voice compared to when experiencing group voice. Therefore, to understand what drives this difference in effort, only the Personal Voice and Group Voice conditions were used for analyses.

Point-biserial correlations (see Table 2) showed that having more direct voice was positively related to perceptions of control ($r = .49, p < .001$), trust ($r = .33, p < .01$), certainty of the outcome of the decision ($r = .38, p < .001$), and certainty of the success of the decision ($r = .26, p < .05$).

Furthermore, the more direct voice one was allowed to have was positively related to greater purported

Table 2 (N = 80)

Intercorrelations with Personal Voice and Group Voice Conditions: Study 1 (N = 80)

	1	2	3	4	5	6	7
1. Voice Conditions (PV = 1, GV = 0)	--						
2. Voice?	.75***	--					
3. Control?	.49***	.73***	--				
4. Trust Boss?	.33**	.27*	.31**	--			
5. Certain Outcome?	.38***	.44***	.41***	.52***	--		
6. Certain Success?	.26*	.24*	.25*	.41***	.48***	--	
7. Work Hard?	.32**	.20	.05	.23*	.28*	.32**	--
8. Quit Job?	-.21	-.19	-.09	-.23*	-.18	-.13	-.53***

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

effort towards the success of the group ($r = .32, p < .01$). All of these findings are consistent with the ANOVA results. Of particular interest are the factors that are related to one's expected effort, which for the current purposes can serve as the primary behavioral outcome variable. The current results found that trust in the boss ($r = .23, p < .05$), certainty of the outcome of the decision ($r = .28, p < .05$) and one's certainty of success ($r = .32, p < .01$) were positively related to expected effort, suggesting trust and certainty may serve as mediators to the voice-behavior relationship.

To explore the possible mediation of voice on expected effort by trust and certainty, a multiple mediation test (with mediators operating in serial; Hayes, 2012) was conducted with trust preceding certainty, consistent with Colquitt et al.'s (2012) model and fairness heuristic theory (Lind, 2001; Van den Bos, 2001), and certainty directly predicting behavioral outcome, following Desai et al. (2011). Both forms of certainty followed trust and were entered separately as potential mediators, with the most relevant relationship between trust and the two forms of certainty being whether trust in the boss to make a good decision predicts certainty of what decision would be made, followed by a similarly relevant relationship existing between having participants' certainty of the outcome of the decision predicting the certainty of the consequences of that decision. The unstandardized regression coefficients for the direct effects of the relevant relationships are: Personal/Group Voice on expected group effort, $B = .63, t(78) = 2.96, p < .01$; Personal/Group Voice on trust, $B = .80, t(78) = 3.10, p < .05$; trust on certainty of decision outcome, $B = .66, t(78) = 5.33, p < .001$; certainty of decision on certainty of success, $B = .67, t(78) = 4.83, p < .001$; and certainty of success on expected group effort, $B = .15, t(78) = 3.02, p < .01$. To test the indirect effect of this serial-mediation, bootstrapping procedures (10,000 samples) revealed that the estimate of the indirect effect ($M = .022, SE = .02$) was significantly different from zero ($p < .05, 95\%$ confidence interval = .003 to .112; see Figure 1). With all mediators included in the model, the direct effect of voice on expected behavior remained significant, $B = .44, t(78) = 2.17, p < .05$, suggesting partial mediation. When assessing the unique

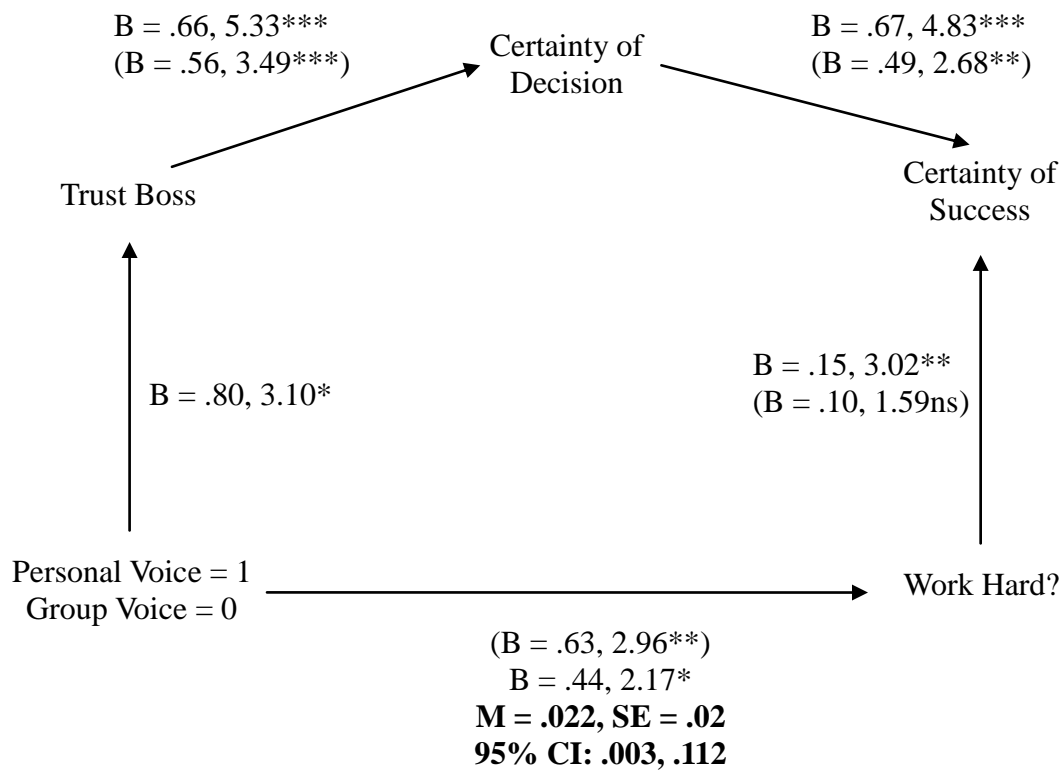


Figure 1. Study 1: Trust and Certainty Partially Mediates the Voice – Effort Relationship

influence of each variable, after accounting for previous predictors, the coefficients are:

Personal/Group Voice on trust, $B = .80$, $t(78) = 3.10$, $p < .05$; trust on certainty of the decision, $B = .56$, $t(77) = 3.49$, $p < .001$; certainty of decision on certainty of success, $B = .49$, $t(76) = 2.68$, $p < .01$; and certainty of success on expected group effort, $B = .10$, $t(75) = 1.59$, $p = .117$. When including the influence of all of the variables, the certainty of success became a non-significant predictor of expected effort. Despite this, the amount of variance it does explain continues to contribute to the partial mediation found. These results should be interpreted with caution.

Direct voice in the decision-making process predicted higher levels of trust in the boss. This increased trust predicted more certainty in the outcome of the decision, which in turn predicted increased certainty that the decision will lead to a successful outcome. Finally, the more one was certain that the long-term consequence of the decision was going to be a success the higher expected effort to be put forth in making the decision a success. Therefore, the current study supports the hypothesis that one of the reasons why having more voice leads to more positive group behaviors is because of the increased sense of trust (Terwel et al., 2010) and how trust may serve as a mechanism to affect one's certainty of the situation (Colquitt et al., 2012). However, the current study expands on past work (e.g., Desai et al., 2011) by revealing that there are different forms certainty can take, with each contributing an important level of explanatory power when trying to understand how the experience of voice affects group members' behaviors.

Conclusions

The purpose of Study 1 was to test any experiential differences among the various forms of voice. In achieving this goal, Study 1 provides evidence that important factors in the experience of group voice is the different amount of certainty that is experienced compared to when group members experience personal voice. The purpose of Study 2 is to build on this relationship and to examine in a live situation (rather than scenario) whether the amount of certainty can be beneficial or detrimental

depending on the type of person experiencing the certainty.

Study 2

The current study adapted the procedure of Desai et al.'s (2011) Study 3. Voice was manipulated between-participant (Personal, Group, and No Voice); the *Composite Voice* condition was removed because the results of Study 1 suggest that the behavior of group members experiencing composite voice was primarily influenced by the allowance of personal voice (given the similarity of the effects of personal and composite voice).

Participants' level of risk aversion was measured in order to serve as a quasi-independent variable and potential moderator of the relationship between group members' perceived certainty and group behavior. Participants' perceived certainty was measured, and participants engaged in a timed brainstorming task in which behavior was objectively measured. Participants were randomly assigned to receive one of three forms of negotiation to decide the payoff for the task they were to complete. All participants were given an offer to work for an imaginary company brainstorming uses for an object. If experiencing personal voice, participants were allowed to personally present a counter-offer in response to an original offer during a negotiation process. If experiencing group voice, all participants were under the belief that a group representative will make a counter offer on behalf of everyone in the session. If experiencing no voice, participants were not allowed to negotiate.

Participants

One-hundred fifty (108 female) undergraduate students from the University of Arkansas participated in this study for course credit and a chance in a lottery for a gift card. Two participants were removed from all analyses because of invalid protocol experiences, leaving the final sample size at 148 participants.

Procedure

Participants entered the lab, were directed to separate cubicles, and were given an informed

consent form to read and complete. They were asked to complete a questionnaire assessing risk aversion across various domains (Weber, Blais, & Betz, 2002). A 36-item version of the Weber et al. questionnaire was utilized as a scale for risk behavior (i.e., "...indicate your likelihood of engaging in each activity"; 1 = "very unlikely", 5 = "very likely"; Cronbach's alpha = .84), with a total score calculated by reverse scoring all items, resulting in higher scores suggesting more risk aversion, and averaging these reverse scored items. Weber et al.'s risk aversion questionnaire contains six sub-scales regarding risk aversion in domains of ethics, investment, gambling, health/safety, recreational, and social, providing for a broad assessment of risk aversion. The *Investment* subscale was not included due to the low relevance the questions have for the lives of college students (e.g., "Investing 10% of your annual income in a moderate growth mutual fund"). To also assess risk aversion, participants responded to a scenario used in Desai et al. (2011). Desai et al. measured level of risk aversion by having participants hypothetically invest in a risky business proposition, with the less they invested indicating more risk aversion. Participants were asked to choose the portion of an imagined \$500 stake they wish to invest. It was described that there was a 67% chance that the investment would fail and a 33% chance the investment will succeed. If the investment fails, participants would lose the amount invested, and if the investment succeeds, participants would receive 3.5 times the amount they invested. Level of risk aversion was the amount of \$500 not invested ($500 - \text{Investment}$), with higher amounts suggesting a more risk averse individual. These responses were converted to a 5-point scale by dividing participants' responses by 100 and the converted score was combined with the Weber et al. total score. This composite risk aversion item was used as a risk aversion quasi-independent variable by a median-split.

After completing this measure, participants were read the following instructions:

...today you are going to be working on a task that measures performance while being a member of a group. The participants in this session will be a group and each of you is a member.

Performance on the task today will allow each of you to earn points for your group.

Points are worth chances in a lottery for Best Buy gift cards at the end of the semester. The more points you have, the more chances in the lottery you will receive. Forty points equals 1 chance.

Each group member will separately earn points for the group. At the end of the task, all group members' earned points will be added together and divided equally back to every member to determine lottery chances. In other words, every group member will receive the same number of chances in the lottery based on the group's total number of earned points. Therefore, the number of chances in the lottery you will receive will depend not only on your performance but on the performance of the entire group.

However, your performance will not always guarantee earning points; there is a percentage chance you will earn zero points at various points during the task.

Next, participants read the following task description (adapted from Desai et al., 2011):

Your group has been made an offer by Smith & Co. to brainstorm uses for a common, everyday object. However, their competitor, Craig & Co., would also like to make your group an offer for doing the same task. These companies are interested in studying how groups affect creativity. Your group can work for either Smith & Co. or for Craig & Co.

The researcher for this session will serve as a representative of Craig & Co. Before we can begin, a decision has to be made regarding how many points each generated object use will be worth and she will have to choose to negotiate with you in one of three ways.

The first way the Craig & Co. representative may negotiate with you and your group is to allow you and your fellow group members to negotiate with her directly by making counter-offers. After you and your fellow group members are allowed to make direct counter-offers, Craig & Co.'s representative will take all of the offers into consideration and make a final offer. All group members can then accept the final offer, which means your group will brainstorm uses for Craig & Co. at the wage agreed to; if all group members reject the final offer, your group will brainstorm uses for Smith & Co. at the rate offered by them.

The second way the Craig & Co. representative may negotiate with you and your group is to allow a randomly chosen representative for your group to make a counter-offer on the other members' behalf with no contact or input from the other members. After the representative for your group is allowed to make a counter-offer, Craig & Co.'s representative will consider the offer and make a final offer. Your representative can then accept the final offer, which means your group will brainstorm uses for Craig & Co. at the wage agreed to; if your representative rejects the final offer, your group will brainstorm uses for Smith & Co. at the rate offered by them.

The third option for the Craig & Co. representative is to not negotiate with you and your group and to have Craig & Co.'s initial offer be the final offer. All group members can then accept this final offer, which means your group will brainstorm uses for Craig & Co. at the wage offered; if all group members reject the final offer, your group will brainstorm uses for Smith & Co. at the rate offered by them.

Please note that in the past the going rate for this task was 50 points per generated use, with a 50% chance of receiving points per use. 40 points equals 1 chance in the lottery.

Participants were probed with questions assessing comprehension of the description of the task

(e.g., "How is Craig & Co. going to allow you to negotiate with them?"; Will you earn points for every

object use generated?); incorrect responses were corrected to ensure full comprehension.

Participants helped the researcher brainstorm uses for a “bowl” to familiarize themselves with the task. Depending on condition, the researcher led participants to believe the choice of how to negotiate was entirely up to the researcher (e.g., Personal Voice: “Today...I think I'm going to have all of you negotiate with me”; Group Voice: “Today...I think I'm going to have one of you negotiate with me”; No Voice: “Today...I think I'm not going to have you negotiate with me”). In this way, participants were aware of all possible forms of negotiation before learning which one they would be experiencing (as recommended by Van den Bos, 1999). Participants then presented with the company's offer (5 points per object use with a 25% chance of receiving points) and either presented counter-offers directly to the researcher (Personal Voice), were told their group's representative would be providing a counter-offer to the researcher and were asked the current date (Group Voice), or were asked the current date (No Voice).

After either having a direct voice, indirect voice, or no voice at all, participants responded to various questionnaire items. Participants were asked to assess their level of voice, “I was allowed to voice my opinion about how many points each unique object use will be worth.” Participants also completed items designed to measure perceptions of procedural justice with regards to general assessment of fairness and the quality of treatment during the decision-making process (adapted from Blader & Tyler, 2003; further adapted by Desai et al., 2011). Items include, “My views were considered when decisions were being made,” “The situation was handled in a fair manner,” and “How would you rate the overall fairness with which issues and decisions that came up today were handled?”; responses were made on a seven-point scale with appropriate anchors. The items assessing perceptions of fairness were averaged to create an Averaged Fairness score (Cronbach's alpha = .94).

Next, participants completed items measuring perceived control (“I feel in control of this situation”) and certainty. First, participants were asked to assess their perceived certainty about the

outcome of the decision needed to be made, “I am certain how many points each generated object use is worth.” Adapted from Desai et al. (2011), participants were also asked, “I am certain how many points I will earn by the end of today’s session.” Additional certainty items were adapted from Thompson and Parker (2007). These items offered a more generic assessment of the level of uncertainty in the current environment. Participants responded to the following items: “I feel uncertain about what is required of me to complete the upcoming task,” “I feel taken by surprise,” “I feel I am unable to function well on the task I am going to complete,” “Uncertainty will interfere with my performance,” and “I feel I have all the information needed to complete the upcoming task” (reverse scale). Responses were measured on a seven-point scale with appropriate anchors. These items were reverse coded to make higher scores represent more certainty and averaged to create a General Certainty score (Cronbach’s alpha = .83).

When all participants had completed the items, the researcher then explained to participants that it would take some time to figure out the final offers each company would present. Therefore, participants were asked to complete the brainstorming task prior to knowing the final offers; the researcher made participants believe that points would still be given to everyone based on the rate for the company that the group would ultimately choose. By having this procedural order, any effect of voice and perceived uncertainty on performance behavior can remain pure. If final offers were presented and accepted prior to performance, all participants (regardless of condition) would have shared the same level of heightened certainty, given the fact that exact point and percentage values would have been known; any differential effect voice might have had on certainty and performance may have been washed out.

Participants were then given instructions on how to complete the task. Adapted from Harkins and Petty (1982), participants took part in a social loafing task in which they were asked to generate uses for an object. A social loafing task was chosen to minimize confounding motivations in

participants' performance (i.e., social presentation concerns) and maximize the cooperative interdependence of individual participants' behavior. In this brainstorming task, participants were told that they shared the responsibility for coming up with uses for the object with all members of the group. Participants believed their individual performance would not be measured because their uses, once generated, would be put into a common pool so that participants could not be associated with his or her creations.

After being told the description and having any final questions answered, participants were told to begin working on the task. The researcher instructed that participants' task was to come up with uses for the object and to write only one use on a single slip of paper and to place the slip in a container sitting next to the participant. Participants were told to keep coming up with uses until a set amount of time had passed in which no one came up with a new use. Participants believed the researcher would be tracking this and would let them know when the task was complete. In reality, the researcher timed the task and gave participants 12 minutes to generate as many uses as they could and ended the task regardless of participants' response rate. Finally, the participants believed that when the task was done, they were to empty their responses into a box so that the researcher could determine the group's total. The researcher actually collected the containers without allowing the mixture of responses. After the allotted time has passed, the task ended and participants were fully debriefed and released from the session.

Results and Discussion

Primary Analyses. To test Hypothesis 1, that the directness of voice one experiences differentially affects one's behavior depending on one's level of risk aversion, multiple 3 (Voice: Personal, Group, No Voice) x 2 (Risk Aversion: High, Low) between-participant ANOVAs were run on the various dependent variables (see Table 3 for means and standard deviations).

For participants' perceptions of being given a voice, there was a main effect for Voice, $F(2,142)$

Table 3

Means and Standard Deviations of Participants' Responses: Study 2 (N = 148)

DV	Risk Aversion	Voice		
		Personal Voice	Group Voice	No Voice
Allowed Voice	Low	6.04 (1.31)	1.77 (1.45)	1.52 (1.22)
	High	6.57 (.73)	1.36 (1.03)	2.82 (2.44)
Views Considered	Low	5.42 (1.30)	2.23 (1.63)	1.89 (1.65)
	High	5.48 (1.75)	1.46 (1.00)	2.73 (2.19)
Composite Fair	Low	5.81 (.96)	3.30 (1.15)	2.72 (1.91)
	High	5.89 (1.39)	2.95 (1.97)	3.20 (2.25)
Control	Low	4.35 (1.16)	2.14 (1.39)	1.78 (1.31)
	High	4.61 (1.83)	1.75 (1.24)	2.50 (1.79)
Certain Points Worth	Low	3.12 (1.51)	2.41 (1.68)	4.56 (2.31)
	High	3.57 (2.11)	2.14 (1.84)	3.82 (2.34)
Certain Points Earn	Low	2.69 (1.46)	1.91 (.97)	2.15 (1.43)
	High	3.26 (2.09)	1.93 (1.72)	2.00 (1.38)
General Certainty	Low	4.90 (1.14)	4.58 (1.27)	4.80 (1.32)
	High	5.05 (1.45)	4.75 (1.36)	4.70 (1.33)
Object Uses	Low	18.69 (7.65)	22.77 (8.28)	23.85 (7.65)
	High	19.91 (8.07)	25.25 (13.41)	22.09 (9.58)

= 158.65, $p < .001$, $\eta_p^2 = .69$. Tukey HSD indicated that the Personal Voice ($M = 6.29$) condition was significantly different from the Group Voice ($M = 1.54$) and No Voice ($M = 2.10$) conditions. Group Voice and No Voice conditions were not different from each other. Those who experienced personal voice reported that they had more voice than those experiencing group voice. There was also a significant main effect for Risk Aversion, $F(1,142) = 3.96$, $p < .05$, $\eta_p^2 = .03$. Those high in risk aversion felt they were allowed more of a voice ($M = 3.58$) than those low in risk aversion ($M = 3.11$). Both main effects were qualified by a significant Voice x Risk Aversion interaction, $F(2,142) = 4.40$, $p < .05$, $\eta_p^2 = .06$. Simple effects tests indicate that in the No Voice condition, those high in risk aversion perceived to have been allowed significantly more voice ($M = 2.82$) than those low in risk aversion ($M = 1.52$), $F(1,142) = 10.00$, $p < .01$, $\eta_p^2 = .07$. There were no significant differences in perceptions of voice in either the Personal Voice or Group Voice conditions dependent on one's level of risk aversion.

For participants' belief that their views had been considered, there was a main effect for Voice, $F(2,142) = 73.40$, $p < .001$, $\eta_p^2 = .51$. Tukey HSD indicated that the Personal Voice ($M = 5.45$) condition was significantly different from the Group Voice ($M = 1.80$) and No Voice ($M = 2.27$) conditions. Group Voice and No Voice conditions were not different from each other. Those who experienced personal voice believed their views were considered more than those provided group voice or no voice at all. There was not a significant main effect for Risk Aversion, $F(1,142) = .03$, $p > .05$, $\eta_p^2 = .00$. However, the Voice main effect was qualified by a significant Voice x Risk Aversion interaction, $F(2,142) = 3.06$, $p < .05$, $\eta_p^2 = .04$. Simple effects tests indicate that in the Group Voice condition, those low in risk aversion believed their views were considered marginally more ($M = 2.23$) than those high in risk aversion ($M = 1.46$), $F(1,142) = 2.80$, $p = .097$, $\eta_p^2 = .02$, while in the No Voice condition, those high in risk aversion believed their views were considered marginally more ($M = 2.73$) than those low in risk aversion ($M = 1.89$), $F(1,142) = 3.33$, $p = .07$, $\eta_p^2 = .02$. There were no differences in beliefs about having one's views considered in the Personal Voice condition dependent

on level of risk aversion.

For participants' perceptions of fairness (as measured by the Averaged Fairness score), there was a main effect for Voice, $F(2,142) = 45.63, p < .001, \eta_p^2 = .39$. Tukey HSD indicated that the Personal Voice ($M = 5.85$) condition was significantly different than the Group Voice ($M = 3.10$) and No Voice ($M = 2.94$) conditions. Group Voice and No Voice conditions were not different from each other. The experience of personal voice led to increased perceptions of fairness compared to group voice and no voice. There was not a significant main effect for Risk Aversion, $F(1,142) = .07, p > .05, \eta_p^2 = .00$, or a Voice x Risk Aversion interaction, $F(2,142) = .75, p > .05, \eta_p^2 = .01$.

For participants' perceptions of control, there was a main effect for Voice, $F(2,142) = 45.78, p < .001, \eta_p^2 = .39$. Tukey HSD indicated that the Personal Voice ($M = 4.47$) condition was significantly different from the Group Voice ($M = 1.92$) and No Voice ($M = 2.10$) conditions. The Group Voice and No Voice conditions were not different. The experience of personal voice leads to more perceived control over the situation. There was not a significant main effect of Risk Aversion, $F(1,142) = .69, p > .05, \eta_p^2 = .01$, or a Voice x Risk Aversion interaction, $F(2,142) = 1.79, p > .05, \eta_p^2 = .03$.

Regarding participants' certainty of how many points each object use would be worth, there was a main effect for Voice, $F(2,142) = 11.39, p < .001, \eta_p^2 = .14$. Tukey HSD indicated that the Personal Voice ($M = 3.33$) and No Voice ($M = 4.22$) conditions were not different from each other, and the Group Voice ($M = 2.26$) condition was significantly lower than both Personal Voice and No Voice. Participants were less certain about the outcome of the decision being made when experiencing group voice compared to personal voice and no voice. Interestingly, because participants in the No Voice condition were not able to negotiate with the researcher, their certainty of how much each object use would be worth may reflect the fact that they had been given a final offer. Therefore, group voice appears to decrease one's level of certainty of the outcome of the decision. There was not a significant main effect for Risk Aversion, $F(1,142) = .32, p > .05, \eta_p^2 = .00$, or a significant Voice x Risk

Aversion interaction, $F(2,142) = 1.11, p > .05, \eta_p^2 = .02$.

Regarding participants' certainty of how many points they would earn by the end of the task, there was a main effect for Voice, $F(2,142) = 6.60, p < .01, \eta_p^2 = .09$. Tukey HSD indicated that the Personal Voice ($M = 2.96$) condition was significantly higher than the Group Voice ($M = 1.92$) and No Voice ($M = 2.08$) conditions. Group Voice and No Voice conditions were not different from each other. Despite being certain about how many points each object use would be worth, participants in the No Voice condition were less certain about how many points they would ultimately earn. However, once again those who experienced personal voice were more certain than those experiencing group voice and no voice. There was not a significant main effect for Risk Aversion, $F(1,142) = .33, p > .05, \eta_p^2 = .00$, or a significant Voice x Risk Aversion interaction, $F(2,142) = .71, p > .05, \eta_p^2 = .01$.

For participants' overall sense of certainty regarding the situation (i.e., General Certainty score), there was not a significant main effect for Voice, $F(2,142) = .73, p > .05, \eta_p^2 = .01$, or for Risk Aversion. $F(1,142) = .11, p > .05, \eta_p^2 = .00$. Furthermore, there was not a significant Voice x Risk Aversion interaction, $F(2,142) = .16, p > .05, \eta_p^2 = .00$. Neither one's experience of voice nor one's level of risk aversion affected the overall sense of certainty of one's situation.

Finally, to test whether one's experience of voice and/or one's level of risk aversion affects group behavior, a 3 (Voice) x 2 (Risk Aversion) ANOVA was run on participants' total number of generated object uses. Results found a significant main effect for Voice, $F(2,142) = 3.36, p < .05, \eta_p^2 = .05$. Tukey HSD indicated that those in the Personal Voice ($M = 19.27$) condition generated significantly fewer object uses than those participants in the Group Voice ($M = 24.16$) condition. The No Voice ($M = 23.06$) condition was not significantly different from either the Personal Voice or Group Voice conditions. Participants who experienced the relatively high levels of voice put forth less effort than those who experienced an indirect voice. Furthermore, the same amount of effort was put forth by those that did not have a voice during decision-making and those who simply had an indirect

voice or a personal voice. There was not a significant main effect for Risk Aversion, $F(1,142) = .17, p > .05, \eta_p^2 = .00$, or a significant Voice x Risk Aversion interaction, $F(2,142) = .65, p > .05, \eta_p^2 = .01$.

The results of the current study replicated the findings of Study 1, in that having an indirect voice in the decision-making process is a distinctive experience compared to having a personal voice. As in Study 1, the current investigation found that experiencing personal voice increased one's sense of control and certainty compared to either having someone present a voice on your behalf or not having a voice. An additional feature of this study was the inclusion of a test of perceived fairness. The results showed that just as having personal voice leads to more control and certainty, so does it lead to increased perceptions of fairness. This suggests that having another person serve as a representative voice on one's behalf does not represent and is not perceived as a fair situation. This is in contrast to the conclusions made by Terwel et al. (2010). In their experiments, participants experiencing group voice expressed higher judgments of procedural fairness compared to when not provided a voice. This effect was not found in the current study, with participants in the Group Voice and No Voice conditions experiencing the same level of procedural fairness. The similarity between the Group Voice and No Voice conditions in both Study 1 and Study 2 begs the question as to whether the current operationalizations of group voice reflects the construct studied by Terwel and colleagues.

An important distinction between Terwel et al.'s (2010) group voice and the form of group voice in the current studies may be the level of analysis at which the decision-making process occurred. In the Terwel et al. studies, participants believed a decision had to be made with two contrasting groups vying for influence over the decision-makers. Terwel et al.'s group voice is an *intergroup* voice. In Study 1 of Terwel et al., both sides of the argument were allowed a representative voice, while in the no voice groups, neither of the interest groups were allowed a representative voice. Consequently, Terwel et al.'s participants' judgments of fairness, trust, and level of cooperation were based on the notion that the decision would either be based on the combination of two contrasting viewpoints or on

neither of the viewpoints. Interestingly, Terwel et al.'s Study 2 found that if participants believed groups were provided an unequal amount of voice (i.e., only one of the two groups having a say in the decision), the situation was considered significantly less fair than when both groups, even if the group having voice was one's own group, are provided group voice. Therefore, in order to have group members believe having an indirect voice is as fair of a procedure as having a direct, personal voice, this indirect, group voice may have to be contrasted with at least one additional indirect outgroup voice. In contrast, the current investigations may represent *intragroup* voice: one representative providing a single representative interest. Although an attempt was made to replicate the psychological experience of having one's interests indirectly presented, having a group voice during intra-group decision-making appears to represent a distinct situation in which group members want direct input. This distinction in situational context is theoretically important and warrants future work.

However, compared to Study 1's finding that having a personal voice increases one's expected effort towards achieving group goals, Study 2 found that having personal voice (i.e., more procedural justice) led to less actual effort put forth in achieving the group's goal. This is in contrast to the common finding that the more justice one experiences, the more positive group behaviors one exhibits (e.g., Desai et al., 2011; Terwel et al., 2010; Tyler & Blader, 2003). To probe why this unexpected result may be occurring, additional analyses were run.

Correlations and Mediation. To test Hypotheses 2, that certainty mediates the relationship between the directness of one's voice and group behavior, correlational analyses were run among participants' responses to the various questionnaire items and the experimental conditions. In Study 1, only the Personal Voice and Group Voice conditions were selected in order to assess why there was a difference in expected effort found between the two groups. In Study 2, the same difference was found in participants' group behavior. Therefore, the remaining analyses will only include the Personal Voice and Group Voice groups (Personal Voice = 1, Group Voice = 0).

Point-biserial correlations (see Table 4) found that having more direct voice was positively related to the belief that one's views were considered ($r = .79, p < .001$), perceptions of fairness ($r = .70, p < .001$), control ($r = .68, p < .001$), certainty about how many points each object use would be worth (i.e., decision-certainty; $r = .29, p < .01$), and how many points one would earn by the end of the day (outcome-certainty; $r = .31, p < .01$). Furthermore, more direct voice was negatively related to the number of object uses generated, or one's effort towards the success of one's group ($r = -.25, p < .05$). These findings are all consistent with the ANOVA results. Of particular interest are the factors that were related to one's effort. The current results found that certainty about how many points each object use would be worth was negatively related to effort ($r = -.23, p < .05$), suggesting certainty of the decision may serve as mediator.

To explore the possible mediation of voice on effort by certainty of the decision outcome, a simple mediation test (Hayes, 2012) was conducted with certainty as the only mediator, based on Desai et al.'s (2011) findings. The unstandardized regression coefficients for the effects of voice on the number of object uses generated was obtained, $B = -4.90, t(97) = -2.49, p < .05$, as well as for the effects of voice on certainty, $B = 1.07, t(97) = 2.98, p < .01$, and for the effects of certainty on number of object uses generated, $B = -1.24, t(97) = -2.32, p < .05$. Following the procedures put forth by Hayes (2012), the bootstrapped test (10,000 samples) for the indirect effect of this mediation pattern revealed that the estimate of the indirect effect ($M = -1.00, SE = .68$) was significantly different from zero ($p < .05$, 95% confidence interval = $-2.79, -.003$; see Figure 2). With the mediator entered into the model, the direct effect of voice on object uses became non-significant, $B = -3.89, t = -1.91, p > .05$, suggesting full mediation. However, when both the voice predictor and the certainty mediator are entered into the model, the certainty of how many points each use would be worth becomes a marginally significant predictor, $B = -.94, t(96) = -1.70, p = .09$. Therefore, the significant mediation must be interpreted with caution and the value of perceived decision-certainty as a mediator must be

Table 4

Intercorrelations with Personal Voice and Group Voice Conditions: Study 2 (N = 99)

	1	2	3	4	5	6	7	8
1. Voice Conditions (PV = 1; GV = 0)	--							
2. Allowed Voice	.90***	--						
3. Views Considered	.79***	.84***	--					
4. Averaged Fairness	.70***	.72***	.78***	--				
5. Control	.68***	.73***	.85***	.76***	--			
6. Certain Points Worth	.29**	.30**	.46***	.45***	.65***	--		
7. Certain Points Earn	.31**	.33***	.42***	.46***	.59***	.72***	--	
8. General Certainty	.11	.12	.20	.34***	.26**	.13	.22*	--
9. Object Uses	-.25*	-.26**	-.20	-.17	-.14	-.23*	-.15	.18

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

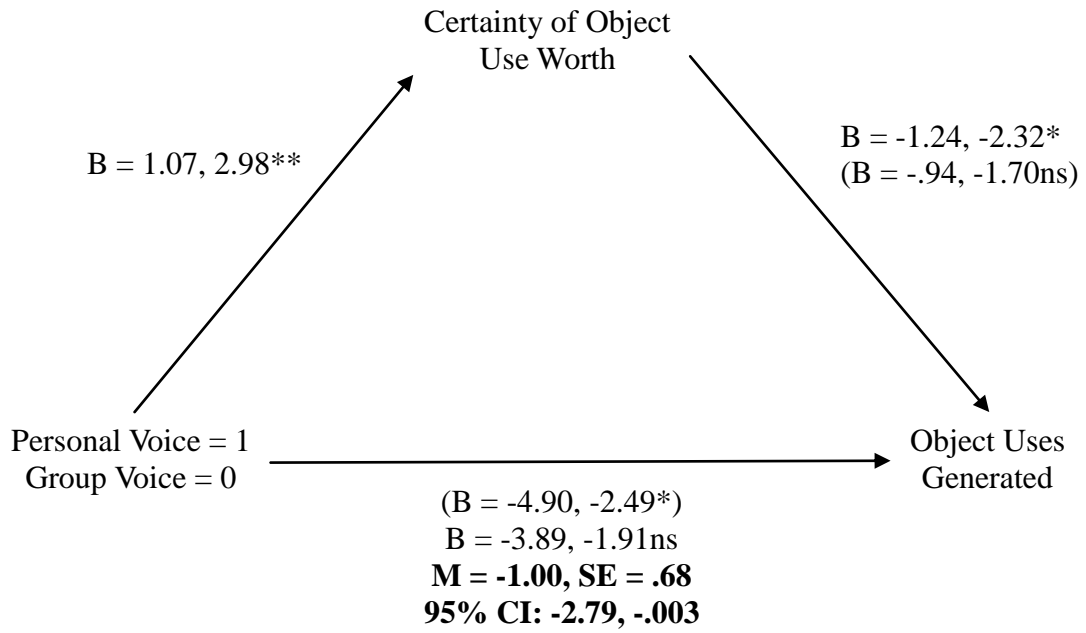


Figure 2. Study 2: Certainty Fully Mediates the Voice – Performance Relationship

assessed by the overall role it plays in predicting how much effort would be put forth towards the group's goal.

Compared to experiencing group voice, having a more direct voice in the outcome of a decision predicts more certainty over the outcome of the decision, which in turn predicts less effort to be put forth in achieving those outcomes. This replicates the findings of Study 1 in that certainty mediates the voice – group behavior relationship. In the current case however, this mediated relationship contradicts the direction by which the mediation occurs. Rather than showing that more certainty leads to positive group behaviors, the current study found that those who are more certain of their future put forth less effort for one's group when given such an opportunity. It may be the case that for some people there is still a positive relationship between level of certainty and group behavior. To assess this, participants' level of risk aversion was also considered in this mediated relationship.

Moderated Mediation. To further probe the relationship between having voice and group behavior, a moderated mediation analysis was run to examine whether the effect of certainty of the decision outcome on the number of object uses generated depends on one's level of risk aversion (Hypothesis 3; Preacher, Rucker, & Hayes, 2007). It is predicted that high risk-averse individuals experiencing low certainty and low risk-averse individuals experiencing high certainty would generate fewer object uses, while high risk-averse individuals experiencing high certainty and low risk-averse individuals experiencing low certainty would generate more object uses. In other words, it was predicted that low risk-averse people would respond negatively and have lower performance when experiencing more voice than when experiencing less voice via the increase of certainty, whereas high risk-averse people would respond positively and have higher performance when experiencing more voice than when experiencing less voice via the increase of certainty.

To test this prediction, a moderated mediation analysis was run (Hayes, 2012; see Table 5). The non-significant interaction between Risk Aversion and Certain Points Worth in the dependent variable

Table 5

Regression Results for Moderated Mediation Analyses with Personal Voice and Group Voice Conditions: Study 2 (N = 99)

<i>Mediator Variable Model</i>				
<i>Predictor</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	1.19	.57	2.11	.037
Voice (PV = 1, GV = 0)	1.07	.36	2.98	.004

<i>Dependent Variable Model</i>				
<i>Predictor</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	30.69	12.37	2.48	.015
Voice	-3.85	2.08	-1.86	.067
Certain Points Worth	-1.52	3.35	-.45	.652
Risk Aversion	-.14	3.16	-.04	.964
Risk Aversion x Certain Points Worth	.15	.89	.17	.862

<i>Conditional Effects at Risk Aversion = mean and +/- 1 SD</i>				
<i>Risk Aversion (W)</i>	<i>Boot indirect effect</i>	<i>Boot SE</i>	<i>Bootstrap 95% CI (5000; Lower, Upper)</i>	
-1 SD Risk Aversion (2.94)	-1.13	.92	-3.440	.308
Mean Risk Aversion (3.57)	-1.03	.69	-2.784	.024
+1 SD Risk Aversion (4.21)	-.92	.93	-3.099	.626

model however implied that the indirect effect of voice on group behavior through certainty was not moderated by one's level of risk aversion. The lack of a moderated indirect effect was further evidenced by evaluating the bootstrapped indirect effects at multiple values of Risk Aversion. Specifically, results showed that all conditional indirect effects were not significant for those falling at the mean +/- 1 SD of Risk Aversion: -1 SD Risk Aversion = 2.94, Bootstrapped Indirect Effect = -1.13, Bootstrapped 95% CI: -3.440, .308; Mean Risk Aversion = 3.57, Bootstrapped Indirect Effect = -1.03, Bootstrapped 95% CI: -2.784, .024; + 1 SD Risk Aversion = 4.21, Bootstrapped Indirect Effect = -.92, Bootstrapped 95% CI: -3.099, .626.

General Discussion

The purpose of the current investigations was to examine the effects of procedural justice, particularly the amount of voice one is given during decision-making, on positive group behaviors. In particular, across two studies, participants were made to believe they belonged to a group that needed to make a decision. In these situations, participants were provided varying degrees of voice during the decision-making process to see what effect this had on their perceptions of and beliefs regarding the situation and decision-making process, judgments of members of the group, and expectations of the consequences of the decision being made. The results of both studies reveal a fairly consistent picture of how varying degrees of voice can affect members of groups.

The purpose of Study 1 was to be an initial test of the relative effects various forms of voice during group decision-making have on group members' perceptions and predicted behaviors. Specifically, participants were asked to imagine themselves as belonging to a software company that was questioning whether to take a new computer game into production. As a member of one of two work groups of different sizes (i.e., 2 people versus 20 people) within the larger software company, participants were given one of four scenarios depicting the boss of the company requesting the opinions of the employees. The boss either requested that members of the group provide their opinion directly to

the boss (Personal Voice), every member of the group provide their opinion to a group representative who then provides an opinion to the boss (Composite Voice), a single group representative provides an opinion to the boss on behalf of the entire group with no group member input (Group Voice), or no group members were allowed to voice their opinions and the boss would decide alone (No Voice).

The results of Study 1 found that having a personal, direct voice, whether it directed at the authority or one's representative, is related to increased perceptions of control, trust, and certainty and is related to more predicted effort put forth for the group. In contrast, having either only an indirect voice or no voice at all was shown to be related to low levels of control, trust, and certainty. Furthermore, simply having an indirect voice was related to less predicted effort given toward achieving group goals. The findings of Study 1 suggest that the reason more voice is related to more positive group effort is because of how trust in the decision-maker is positively related to being more certain of what that decision-maker will do, which in turn predicts more certainty of how the decision will affect one's self as a member of the group in the future. Therefore, Study 1 supports the notion that the psychological experiences of group voice and personal voice are quite divergent.

The purpose of Study 2 was to bring the current research questions into the lab and see whether similar results could be found when participants belonged to a real group. Participants joined four other group members with the task of generating uses for an everyday object so the group could earn points for chances in a lottery. How many points each object use was worth, though, was dependent on how the researcher chose to negotiate (i.e., provide an opportunity for voice) with the group. Depending on condition, participants believed every member of the group would provide a counter-offer to the researcher's initial offer (Personal Voice), a randomly chosen group representative would provide a counter-offer on behalf of the rest of the group without any input from the other group members (Group Voice), or the group was not allowed to negotiate (No Voice).

The results of Study 2 are similar to those of Study 1, in that more direct voice was related to

increased perceptions of voice and certainty. Trust in the decision-maker was not measured in Study 2 because it was unclear whether there was a single, distinct decision-maker. In the cover story for Study 2, participants believed that after negotiations, the group would ultimately be provided two offers from two fictional companies that wanted the group to create object uses at a particular rate. In this sense, participants were led to believe that the group itself would have the final say as to whom they would work for and for how many points. Compared to the scenario in Study 1, where the boss clearly represented the decision-maker, the paradigm used in Study 2 was not conducive for establishing a single authority that needed to be trusted. It could be argued that the researcher, who was or was not going to use the group's voice(s), could be a worthy target for group members' trust. However, it was believed to be an unrealistic situation in which the authority could not be trusted. In other words, having participants evaluate a researcher seemed likely to only show ceiling effects in perceptions of trust. Obviously this may not be the case and future work would do well to measure group members' trust in the researcher, believing that just as found in Study 1, trust would be higher when provided a personal voice compared to a group voice or no voice.

Voice's Different Effect on Behavior

An unexpected finding in Study 2 was that more voice given to group members was related to fewer object uses generated on behalf of the group. Inconsistent with the conclusions drawn from Study 1, participants in Study 2 put forth less effort on the task at hand after having been given a direct say as to how the task should benefit the group. In a task that measures the motivation of individual members to benefit the group as a whole, having a personal voice appears to lessen this motivation so that members appear to be less cooperative than when members are merely provided a group voice. Allison, Messick, and Samuelson (1985) found similar results in their field study of public-good contributions. Allison et al. contacted the alumni of a graduate psychology program saying that the quality of graduate student research (i.e., the public good) was in jeopardy because of budgetary cutbacks. The

alumni were asked for monetary donations to help sustain the high quality of the public good. The independent variable was whether the alumni were simply asked to donate money or whether they were asked for money and their opinions were solicited regarding how the department should use the money that is collected. The later condition represented an opportunity for the alumni to provide a voice, with Allison et al. predicting that those alumni that had their opinions solicited would contribute more.

Despite the fact that there were no differences in the overall number of alumni that chose to contribute money between those who had their opinions solicited or not, it was found that those who were given a questionnaire about their opinions contributed significantly less than those who did not have their opinions asked. Allison et al.'s (1985) post hoc explanation for this unexpected result suggests that the level of contribution represents a form of helping response and that the alumni were induced to weigh the costs and benefits of making that helping response. The authors discuss that the alumni's "cost" of filling out the questionnaire (i.e., effort exerted; time lost) may have affected the alumni's contribution behavior. As Allison et al. (1985) put it: "returning the questionnaire may have been counted as a contribution to the department that had some significant cash equivalence" (p. 204). In this sense, those who are given a voice during decision making may "overestimate the impact of their actions" (p. 205); similar results have been found related to an egocentric bias regarding attributions of responsibility for the outcome of a joint product (Ross & Sicoly, 1979). Although this explanation is speculative, the current results show the same pattern of results. Participants in the Group Voice and No Voice conditions did not technically provide a voice and thus may not have provided a significant contribution to attaining the goal of a final decision. This explanation for Study 2's findings remains consistent with the findings of Study 1 because in Study 1 participants were merely asked to report their level of expected effort. Having a direct voice may positively affect group members' expectations while adversely affecting actual group behavior through a diffusion of responsibility for the final group outcome. This possibility undoubtedly depends on various factors,

such as commitment to one's group and the perceived efficacy of one's voice in the final decision-outcome.

To say that group members who experienced personal voice are unmotivated may be unfair. The truth may be that being given a personal voice changes one's motivation to be more ego-centric and away from an orientation to help the group. Rather than being unmotivated because of diffusion of responsibility, group members that provide a personal voice may be actively trying to avoid being the “sucker” of the group and being taken advantage of by the other members. This suggests that if all members are trying to avoid being the sucker, then the group's overall output would be less than it would be if all were putting forth full effort. Those given a personal voice may believe that the outcome of the decision will be optimal: the highest number of points per object use, relative to the initial offer, that this group could negotiate. This means the final decision would likely result in the highest amount of points earned. This belief may make those who provided a personal voice realize that the other members of the group want to receive these points without having to earn them. Therefore, having a personal voice may make group members self-protective and defensive. Another possible outcome of holding a belief that personal voice means the final decision will be ideal is that it makes the situation quite lucrative for one's self and thus a perfect opportunity to loaf. Being given opportunities for voice have been shown to raise recipients' outcome expectancies (Houlden, Walker, & Thibaut, 1978; Lind, Kanfer, & Earley, 1990). Rather than making oneself overly defensive, having a personal voice may actively promote more selfish patterns of behavior. Consequently, if not provided a voice or merely provided group voice, then one must put in significantly more effort to compensate for the less-than-ideal decision made. The results of Study 2 support these potential lines of thinking, with those in the Group Voice condition putting forth the most effort, perhaps because having a single representative provide a voice leaves open the possibility that the representative's voice was used inappropriately and did not mirror how one's own voice would have and should have been used.

On the other hand, another possible explanation for Study 2's findings may be that when given a personal voice one believes that the outcome of the decision will be sub-optimal or averaged across the many voices; giving all group members a voice may force the decision-maker to *settle* to accommodate everyone's opinion. Therefore, group members may feel that some internal goal of earning a particular number of lottery chances may be more difficult to achieve because of the less-than-ideal compromise that had to be made. In this sense, those given a personal voice may not feel their efforts are worth it and are content in working less. Consequently, this would suggest that those provided group voice expect the final decision to be optimal and worth the time and effort needed to successfully complete the task. Zaccaro (1984) found that social loafing decreases under conditions of high task attractiveness, with task attractiveness manipulated by having participants believe the highest scoring group in the social loafing task would receive extra experimental credits (high attractiveness) or not including any information about extra experimental credits (low attractiveness).

It has been argued that commitment to the group and/or commitment to the successful completion of social loafing tasks are factors that exert a force on group members to reduce loafing and promote positive group behaviors (Festinger, 1950). To ensure commitment, groups can increase how much group output is worth for each individual member. In other words, a task may be said to be attractive and worth doing if the outcomes of the task are substantial and profitable for the group's members. The question remains as to whether having group voice fulfills these criteria? This is unlikely, given the similarity in the number of generated object uses between the Group Voice and No Voice conditions. The only information provided to participants in the No Voice condition was that the company representative's offer was extremely low (5 points with a 25% chance) compared to the historical information provided (40 points with a 50% chance). It is unlikely that the No Voice groups felt this was optimal. Future work would do well to question group members' beliefs about the expected outcome of the decision and whether these beliefs about how many points each object use would be

worth reflects whether one was given a direct voice or an indirect voice.

Why Voice Affects Behavior

In both studies, mediational analyses found that participants' perceptions of certainty help explain why experiencing voice predicts future behavior. In Study 1, having more direct voice predicted more trust in the boss to make the correct decision, which in turn predicted more certainty of the outcome of the decision. Certainty of what the decision would be predicted more certainty that the consequences of the decision would be a success, which ultimately predicted more projected effort given toward accomplishing group goals. The findings of Study 2 found that having more direct voice predicted more certainty of the outcome of the decision, which in turn predicted fewer object uses generated. The reason why perceptions of certainty played such an important role in determining group members' behavior may be because group members, in both studies, had to make judgments about the decision without having any information about the outcome of the decision. Group members had to rely on internal judgments and perceptions to guide their behavior because the external situation lacked evidence that could help inform their decisions to behave a particular way. The hypothetical nature of Study 1 required that participants project how much effort they would be willing to put forth towards the company's goal, with no real decision ever being made. In Study 2, participants had been told time was running short and that it would be best if the group would complete the object-use task prior to learning how many points each object use would be worth. In both cases, judging the quality of the decision-making process (e.g., what does having group voice mean for the success of me and my group?) could not rely on the outcome of the decision.

Baron and Hershey (1988) investigated outcome biases when evaluating decisions. Evaluations are often made after the fact, which suggests that knowing the outcome of a decision may bias one's evaluations of the quality of the decision. It may be difficult to differentiate between a good decision and a good outcome if both forms of information are known. Knowledge gained after a decision is

made should be “irrelevant to the quality of the decision” (Baron & Hershey, 1988, p. 569). Therefore, group members who are provided with a particular amount of voice during group decision-making and are subsequently asked to behave prior to knowing the decision outcome may not succumb to this outcome bias. Baron and Hershey's had participants read about various decisions having to be made and the outcomes of those decisions. For example, one scenario depicted a 55-year-old man, with a heart condition having to stop work and quit recreational activities. Participants further read that a bypass operation could help his pain but that the operation had a high success rate. Finally, the participants were told that the man's physician decided to do the operation and it was a success. After reading a scenario such as the one depicted above, participants were asked to evaluate the physician's decision to do the operation. Variations of the scenarios reflected different decisions having to be made and different outcomes (e.g., the operation failed and the man died). The results generally found that participants rated the decision-making thinking as better, judged the decision maker as more competent, and were more willing to yield to the decision when the outcome was favorable compared to unfavorable. A reason why outcome information biases one's evaluations of a decision is that beliefs about the probability of an outcome are modified after gaining outcome information. Knowing that an outcome occurred makes you believe that outcome was more probable, or more certain to have occurred (hindsight bias).

The participants in Study 1 and Study 2 did not have decision-outcome information, so they could not use this information to judge the quality of the voice procedure. However, being able to directly express an opinion about whether a game should go into production or about how many points each object use should be worth may make one believe there is outcome information. In one sense, by providing a direct voice, group members are creating their own outcome information (similar to the notion of voice providing “outcome control”; Shapiro & Brett, 2005), despite the real possibility it is false outcome information. Although this explanation is speculative, Baron and Hershey (1988) may

then argue that the current participants could still succumb to the outcome bias and evaluate the quality of the decision and decision-making process, subsequently guiding decisions to behave a particular way towards the group, by reflecting on self-generated outcome information. This self-generated information may further modify the judged probability of an outcome, helping to explain why perceived certainty (increased probability of an outcome) results from experiencing more direct forms of voice and why this certainty helped predict future behavior. Across both studies, it appeared that the judged probability of the decision outcome increased with more voices involved (Desai et al., 2011; Lind, 2001; Van den Bos, 2001; Van den Bos & Lind, 2002).

Group Voice versus No Voice

Finally, the current studies suggest that the experience of group voice may be similar to that of not having a voice at all, evidenced by the consistent lack of differences between those in the Group Voice and No Voice conditions across both studies. The lack of differences is in contrast to Terwel et al.'s (2010) findings that the experience of group voice is distinct from not having a voice when evaluating one's level of trust of the decision makers (group voice leading to more trust) and when deciding whether to accept the final decision made (i.e., cooperation; group voice leading to more acceptance/cooperation).

This inconsistency may be explained by Terwel et al.'s (2010) operationalization of group voice as when an interest group (i.e., an association of like-minded people that publicly promotes and creates advantages for its cause) receives an opportunity to voice group members' opinions during decision-making. In their studies, Terwel et al.'s participants were induced to be pro carbon-dioxide capture and storage (CCS; i.e., on the side of a pro-CCS, environmental non-governmental organization), and were led to believe that pro- or con-CCS interest groups were either allowed or denied the ability to advise a national government "CCS board." The presence or absence of participants' group voice came in the form of whether or not the pro-CCS interest group was allowed to advise the government on behalf of

the participants' now held beliefs. The difference between the current findings and Terwel et al.'s may be due to the fact that the current participants believed they would have a single representative express their opinions rather than having an entire interest group, of multiple voices, being represented. It may be easier to trust the efforts of a group of representatives rather than the efforts of a single person. Therefore, the current investigation's operationalization of group voice may naturally lead to lowered levels of trust compared to other forms group voice can take. The possibility that the number of voices representing one's voice can serve as a moderator of the psychological effects of group voice has great potential for future investigations.

Future Directions

Based on the analysis of the two studies above, there are many possibilities for future avenues of research. First, replications of the current studies would benefit from asking group members precisely of what they feel certain. The results of both Study 1 and 2 suggest that the reason why having voice during decision making affects group behavior is because voice affects perceptions of certainty. However, participants in the current studies were asked to respond to items assessing certainty targeted at the situation (e.g., "I am certain how many points each generated object use is worth"). Responses to this item, for example, cannot tell us precisely how many points they believed each use would be worth. Participants who experienced high amounts of certainty in Study 2 may have been certain that each use would be worth 80 points, either making one's individual contributions more lucrative or representing a perfect situation in which to slack off and loaf. It may also be the case that participants were very certain that each use would only be worth 8 points, either making one's contributions that more crucial to help the group succeed or representing a situation that behaving is not worth the effort. To begin to understand how high levels of certainty can in one instance predict more effort while in another instance predict less effort, it will be important to further probe group members as to whether they are certain that the decision will result in positive outcomes for oneself and/or the

group or will be detrimental to oneself/the group (e.g., “How many points do you think each object use will ultimately be worth?”; “Do you believe this point value will be beneficial for you/for the group?”). Responses to these items can help us gain insight into group members' motivational state, which may further help predict in what direction behavior will occur.

The fact that group members across both studies may have been in differing motivational states, despite explicitly expressing a state of certainty/uncertainty, suggests that another avenue of future research may focus on varying the type of task in which various forms of voice may be given. In Study 1, participants took on the role of a group member in a larger company, with participants believing they had at least one boss. The task in Study 2 was purposefully chosen to be a social loafing task, in which individual input could not be traced back to a single group member. Therefore, Study 1 may have represented a scenario that lacked anonymity (however this is speculation given the scenario-based nature of the task), while Study 2 represented a high-anonymity task.

Desai et al.'s (2011) Study 3 had participants complete mazes for one of two imagined companies. Similar to the current Study 2, Desai et al. had participants use a keyboard to move a blue dot through a maze to reach an end-point, and for each maze completed, an individual would earn points based on how he/she had been allowed to negotiate with one of the company's representative. Desai et al. found that having personal voice predicted higher perceptions of certainty, which in turn predicted more mazes completed. This contradicts the current Study 2's findings. However, Desai et al. measured participants individually, not as members of a group. It is very likely that Desai et al.'s participants did not feel anonymous completing their task on a computer, where the researcher was tracking individual performance. Having a more direct voice negatively predicted performance in the high-anonymity, social-loafing task in Study 2, suggesting that having a more direct voice may make one certain that each object use will be worth enough points to legitimately free-ride on the effort of others while still gaining rewards (a possibility discussed above). Future work could focus on using

non-social loafing group tasks to see if the pattern of results reflect those found in Study 1 and Desai et al. (2011), where having a more direct voice and more certainty both positively predicted behavior.

Another interesting future question deals with the level of analysis in which group voice is experienced. As discussed previously, the current form of group voice most readily represents *intragroup* voice, where a single representative is speaking on behalf of other members of the same group. Terwel et al.'s (2010) *intergroup* voice occurs when two (or more) groups each send a representative to express differing opinions. It is clear that future work on group voice should focus on clarifying why under particular conditions having one's voice indirectly expressed either positively or negatively affects group members. Particularly at the intergroup level, the positive effects of group voice may be contingent on other psychological processes, such as ingroup favoritism (i.e., the ingroup bias effect; Brewer, 2007; Hewstone et al., 2002; Scheepers et al., 2006) or high levels of intergroup competition and low levels of trust in the outgroup (i.e., the individual-group discontinuity effect; Insko et al., 1998; Insko, Schopler, Gaertner, et al., 2001; Lodewijckx, Rabbie, & Visser, 2006; Schopler et al., 1994). Under such circumstances, having an indirect voice is at least better than not having a voice at all, just as long as the outgroup cannot have an abundance of unchecked influence; group voice is better than *their* voice.

During intragroup voice, however, another factor that future work can focus on may be how the representative for the group is chosen. In Study 1, the participants read that the boss chose the representative, and in Study 2 it was made clear the representative was to be chosen at random. Whether one identifies with the representative as a fellow group member (i.e., social identity theory; Tajfel & Turner, 1979) may affect the level of trust in the representative to truly speak on behalf of the entire group, including oneself. If group members are given the opportunity to choose their representative voice (e.g., by unanimous vote or simple majority) then the representative may be perceived to be more reliable and trustworthy, thus potentially increasing the scope of situations in

which intragroup voice can positively affect individual group members' motivations and behaviors. This may explain why Terwel et al. (2010) found a positive relationship between being provided group voice and trust, because the participants and the interest groups were explicitly made to believe they share the same values and goals and are consequently alike within the same social category.

Finally, a future extension of the current studies would be to examine whether group members' social value orientations help predict the desire for personal voice or group voice. Social value orientation (SVO) is an individual difference variable that differentiates between egocentric and egalitarian motives during group decision-making (e.g., Messick & McClintock, 1968). Individuals that hold egocentric and egalitarian perspectives are common labeled as *proselfs* and *prosocials*, respectively. Regarding the distinction between personal voice and group voice, proselfs and prosocials appear to desire different distributions of voice among group members. Van Prooijen et al. (2008) found that proselfs are consistently “responsive to variations in the extent to which decision-making authorities allow or deny them the opportunity to voice their opinions” (Van Prooijen, Ståhl, Eek, & Van Lange, 2012, p. 1248). Van Prooijen et al. (2012) show that when someone else receives a voice, one's own procedure is viewed more favorably after receiving a voice compared to when denied a voice. However, SVO did not appear to matter following an own no-voice procedure when another received voice. When the self is denied an opportunity to have a voice, and someone else is given that opportunity instead, perceptions of the fairness are expected to be low. This replicates the findings of the current studies, with participants from both studies in the Group Voice conditions believing such a system with some random person being given a voice, ostensibly as a representative voice for the group, to be unfair.

What is interesting in Van Prooijen et al.'s (2012) findings is that when another person is denied a voice, SVO appeared to affect perceptions of one's own procedure. Van Prooijen et al.'s results found that the procedural evaluations of proselfs were strongly based on whether they themselves received a

voice. Proselfs perceived procedures to be fair only if they received voice, regardless of whether anyone else received voice. Prosocials were concerned about whether there was an equality of voice between people, whether this means both received a voice or both were denied a voice. With this in mind, it may be the case that SVO differentially matters in procedural judgments depending on the form group voice takes. If during intergroup decision-making both groups' members experience group voice (i.e., both groups send a representative voice), then both proselfs and prosocials may be happy and experience fairness either because the self receives a voice or because there is an equality of voice among groups. Although not measured, this may account for the increased perceptions of fairness with Terwel et al.'s (2010) intergroup voice. Unfortunately, during intragroup voice, the fact that a representative's voice is the only voice being heard is quite salient in the mind of group members, thus predicting that perceptions of group voice to be universally unfair for all SVO types (either because the self is denied a voice or because there is an inequality of voices within the group). Taken together, these findings suggest measuring group member's SVOs may help further the literature on group voice by differentiating when and why people may believe it is acceptable to experience group voice.

Conclusion

In conclusion, the findings of the current research suggest that groups must take care to ensure their members are treated in a fair manner because there are both benefits and limitations to providing members a voice during decision-making. Particularly relevant for a wide variety of real-world groups, the results of the above studies suggest that it would be wrong to rely solely on group voice to instill a sense of procedural justice in the minds of the members of the groups. However, the need for group voice is quite common in an ever-more-complex society. For example, there can be various opportunities for voices to be heard within a large corporation, such as having a small group of employees airing grievances to a manager or a union representative sitting in on negotiations for employee benefits. Any form of hierarchy is inherently based on the notion of providing group voice,

with one's personal voice being sent continually up the line in an ever more indirect fashion.

Unfortunately, the current research argues that such a group structure may provide efficiency at the cost of individual member satisfaction. Interestingly, there are other cases of group voice that occur in the real world where group members have historically been satisfied with having one's interests represented with no day-to-day, direct input to the point that large amounts of personal time and money are given to ensure this indirect voice can be heard (e.g., Congress). However, as Terwel et al. (2010) found, the positive effects that come from this form of group voice may rest on the fact that it is intergroup voice, where one's indirect voice is at least better than another's voice alone. Taking Terwel et al.'s findings and the current findings together, the endeavor to understand group voice will be complex and beneficial. The future of research on the effects of group voice is full of possibilities and will be conducive to interdisciplinary investigations that are relevant not only to the psychological literature but also to the understanding of society's fundamental notions of what is considered democratic, just, and fair.

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Appendix A: Study 1 Informed Consent Form

CONSENT TO PARTICIPATE IN AN EXPERIMENTAL STUDY

Title: Evaluating Employee Decision-Making

Investigator(s):

David A. Schroeder, Ph.D
Dennis L. Poepsel, M.S.
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College of Arts and Sciences
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Administrator:

Ro Windwalker, Compliance Coordinator
Research & Sponsored Programs
Research Compliance
University of Arkansas
210 Administration
Fayetteville, AR 72701-1201
479-575-2208
irb@uark.edu

Restrictions: You must be at least 18 years old to participate in this experiment.

Description: As a participant, you will be presented with a scenario asking you to take on the role of an employee of a company and you will be asked to answer a series of questions based on the situation depicted in the scenario. This study will take 30 minutes.

Confidentiality: The responses you provide on materials associated with this experiment will be recorded anonymously, separate from this consent form, and kept confidential to the extent allowed by law and University policy. Your name will never be used in reporting the results of our research.

Risks and Benefits: There are no risks to participating in the study. By participating in this study, the researchers will have a clearer picture as to how group members desire interactions to occur within a group. Participants will also gain insights into how psychological research is actually conducted. Participants will receive research participation credit for this study (1/2 research credit).

Voluntary Participation: Your participation in the research is completely voluntary. You are free to discontinue your participation in this study at any time. You do not need to answer any question that you do not want to answer. You may receive credit toward your General Psychology research requirement for participation. If you discontinue participation, you will still receive credit commensurate with the time you have spent.

Informed Consent: I have read the description, including the nature and purpose of the study, the procedures to be used, the potential risks and benefits, as well as the option to discontinue my participation in the study at any time. I believe that I understand what I will be doing. By typing my name below, I indicate that I am over 18 years of age and freely agree to participate in this experimental study.

Signature

Date

STUDENT ID#

Appendix B: Study 1 Scenarios and Questions

*2 Person Group/Personal Voice

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and one other employee. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss asks for your opinion and your fellow employee's opinion in order to use them during the decision-making process.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much
						So

I have control over this situation.

1	2	3	4	5	6	7
Strongly						Strongly
Disagree						Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly						Strongly
Disagree						Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly						Strongly
Disagree						Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much
						So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be							Unsure							I will receive
fired							about							the large bonus
							what will							
							happen							

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly						Strongly
Disagree						Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

***20 Person Group/Personal Voice**

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and nineteen other employees. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss asks for your opinion and all of your fellow employees' opinions in order to use them during the decision-making process.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

*2 Person Group/Group Voice

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and one other employee. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss asks for your fellow employee's opinion, to serve as a representative of the opinions of your entire team, in order to use it during the decision-making process. You do not have a chance to discuss your opinion with your team's representative before he talks to the boss.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

*20 Person Group/Group Voice

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and nineteen other employees. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss asks one of your fellow employee's opinion, to serve as a representative of the opinions of your entire team, in order to use it during the decision-making process. You and the other team members do not have a chance to discuss your opinions with your team's representative before he talks to the boss.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

*2 Person Group/Composite Voice

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and one other employee. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss asks your fellow employee's opinion, to serve as a representative of the opinions of your entire team, in order to use it during the decision-making process. You discuss your opinions with your team's representative before he talks to the boss.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

***20 Person Group/Composite Voice**

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and nineteen other employees. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss asks one of your fellow employee's opinion, to serve as a representative of the opinions of your entire team, in order to use it during the decision-making process. You and the other team members discuss your opinions with your team's representative before he talks to the boss.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

*2 Person Group/No Voice

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and one other employee. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss does not ask for your opinion or your fellow employee's opinion during the decision-making process; the boss makes the decision alone.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

***20 Person Group/No Voice**

Read this scenario as if you are experiencing the situation yourself.

You are an employee at a company producing and selling computer games and software. In this company, employees work together in teams. Your team consists of you and nineteen other employees. A decision has to be made whether or not to take a new computer game into production. Doing so is risky because if the game is a success, employees will get a large bonus, but if the game is a failure, there will be firings. The company's boss does not ask for your opinion or all of your fellow employees' opinions during the decision-making process; the boss makes the decision alone.

I am allowed to voice my opinion?

1	2	3	4	5	6	7
Not at All						Very Much So

I have control over this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I see no reason to doubt my boss' competence to make the right decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I can rely on my boss not to make the wrong decision?

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel certain about the final outcome of the decision to put the game into production?

1	2	3	4	5	6	7
Not at All						Very Much So

I expect the following to occur in the future.

-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
I will be fired							Unsure about what will happen							I will receive the large bonus

I will work hard on producing the new computer game.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I will most likely quit this job.

1	2	3	4	5	6	7
Not at All						Definitely

How many people were either directly or indirectly allowed to express an opinion during the decision-making process?

Appendix C: Study 2 Informed Consent Form

CONSENT TO PARTICIPATE IN AN EXPERIMENTAL STUDY

Title: Group Influence on Creativity

Investigator(s):

David A. Schroeder, Ph.D
Dennis L. Poepsel, M.S.
University of Arkansas
College of Arts and Sciences
Department of Psychology
216 Memorial Hall
Fayetteville, AR 72703
479-575-4256

Administrator:

Ro Windwalker, Compliance Coordinator
Research & Sponsored Programs
Research Compliance
University of Arkansas
210 Administration
Fayetteville, AR 72701-1201
479-575-2208
irb@uark.edu

Restrictions: You must be at least 18 years old to participate in this experiment.

Description: As a participant, you will join a group and work on tasks to measure creativity while under group influence. You will also complete a series of questionnaire items about yourself and your experiences in the experiment. This study will take 1 hour.

Confidentiality: The responses you provide on materials associated with this experiment will be recorded anonymously, separate from this consent form, and kept confidential to the extent allowed by law and University policy. Your name will never be used in reporting the results of our research.

Risks and Benefits: There are no risks to participating in the study. By participating in this study, the researchers will have a clearer picture as to how group member performance is affected by group processes. Participants will also gain insights into how psychological research is actually conducted. Participants will receive research participation credit for this study (1 research credit).

Voluntary Participation: Your participation in the research is completely voluntary. You are free to discontinue your participation in this study at any time. You do not need to answer any question that you do not want to answer. You may receive credit toward your General Psychology research requirement for participation. If you discontinue participation, you will still receive credit commensurate with the time you have spent.

Informed Consent: I have read the description, including the nature and purpose of the study, the procedures to be used, the potential risks and benefits, as well as the option to discontinue my participation in the study at any time. I believe that I understand what I will be doing. By typing my name below, I indicate that I am over 18 years of age and freely agree to participate in this experimental study.

Signature

Date

STUDENT ID#

Appendix D: Study 2 Demographic/Risk Aversion Questionnaire

Please complete the following items. There are no right or wrong answers.

Gender: Male Female

Age: _____

Class: Freshman Sophomore Junior Senior

For each of the following statements, please indicate your likelihood of engaging in each activity or behavior.

1. Admitting that your likes and dislikes are different from those of your friends.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
2. Going camping in the wilderness, beyond the civilization of a campground.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
3. Betting a day's income at the horse races.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
4. Buying an illegal drug for your own use.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
5. Cheating on an exam.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
6. Chasing a tornado or hurricane by car to take dramatic photos.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
7. Consuming five or more servings of alcohol in a single evening.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
8. Cheating by a significant amount on your income tax return.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
9. Disagreeing with a parent on a major issue.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
10. Betting a day's income at a high stake poker game.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely
11. Having an affair with a married man or woman.
1 2 3 4 5
Very Unlikely Unlikely Not sure Likely Very Likely

12. Forging somebody's signature.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
13. Passing off somebody else's work as your own.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
14. Going on a vacation in a third-world country without prearranged travel and hotel accommodations.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
15. Arguing with a friend about an issue on which he or she has a very different opinion.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
16. Going down a ski run that is beyond your ability or closed.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
17. Approaching your boss to ask for a raise.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
18. Illegally copying a piece of software.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
19. Going whitewater rafting during rapid water flows in the spring.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
20. Betting a day's income on the outcome of a sporting event (e.g., baseball, soccer, or football).
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
21. Telling a friend if his or her significant other has made a pass at you.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
22. Shoplifting a small item (e.g., a lipstick or a pen).
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
23. Wearing provocative or unconventional clothes on occasion.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
24. Engaging in unprotected sex.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
25. Stealing an additional TV cable connection off the one you pay for.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |

26. Not wearing a seatbelt when being a passenger in the front seat.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
27. Periodically engaging in a dangerous sport (e.g., mountain climbing or sky diving).
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
28. Not wearing a helmet when riding a motorcycle.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
29. Gambling a week's income at a casino.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
30. Taking a job that you enjoy over one that is prestigious but less enjoyable.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
31. Defending an unpopular issue that you believe in at a social occasion.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
32. Exposing yourself to the sun without using sunscreen.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
33. Trying out bungee jumping at least once.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
34. Piloting your own small plane, if you could.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
35. Walking home alone at night in a somewhat unsafe area of town.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |
36. Regularly eating high cholesterol foods.
- | | | | | |
|---------------|----------|----------|--------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Unlikely | Unlikely | Not sure | Likely | Very Likely |

Read the following scenario and answer the question below:

You have recently earned \$500. A friend of yours has asked you to invest money into a risky investment. There is a 67% chance that the investment will fail and a 33% chance the investment will succeed. If the investment fails, you will lose the amount of money that you invest. If the investment succeeds, you will receive 3.5 times the amount that you invest. What amount of money would you be willing to invest in this risky investment?

You may invest any amount between \$0 and \$500.

Investment: _____

Appendix E: Study 2 Task Description

Your group has been made an offer by Smith & Co. to brainstorm uses for a common, everyday object. However, their competitor, Craig & Co., would also like to make your group an offer for doing the same task. These companies are interested in studying how groups affect creativity. Your group can work for either Smith & Co. or for Craig & Co.

The researcher for this session will serve as a representative of Craig & Co. Before we can begin, a decision has to be made regarding how many points each generated object use will be worth and she will have to choose to negotiate with you in one of three ways.

The first way the Craig & Co. representative may negotiate with you and your group is to allow you and your fellow group members to negotiate with her directly by making counter-offers. After you and your fellow group members are allowed to make direct counter-offers, Craig & Co.'s representative will take all of the offers into consideration and make a final offer. All group members can then accept the final offer, which means your group will brainstorm uses for Craig & Co. at the wage agreed to; if all group members reject the final offer, your group will brainstorm uses for Smith & Co. at the rate offered by them.

The second way the Craig & Co. representative may negotiate with you and your group is to allow a randomly chosen representative for your group to make a counter-offer on the other members' behalf with no contact or input from the other members. After the representative for your group is allowed to make a counter-offer, Craig & Co.'s representative will consider the offer and make a final offer. Your representative can then accept the final offer, which means your group will brainstorm uses for Craig & Co. at the wage agreed to; if your representative rejects the final offer, your group will brainstorm uses for Smith & Co. at the rate offered by them.

The third option for the Craig & Co. representative is to not negotiate with you and your group and to have Craig & Co.'s initial offer be the final offer. All group members can then accept this final offer, which means your group will brainstorm uses for Craig & Co. at the wage offered; if all group members reject the final offer, your group will brainstorm uses for Smith & Co. at the rate offered by them.

Please note that in the past the going rate for this task was **50 points** per generated use, with a **50% chance** of receiving points per use. **40 points** equals **1 chance** in the lottery.

Appendix F: Study 2 Process Questionnaire

Please complete this short questionnaire.

I was allowed to voice my opinion about how many points each unique object use will be worth.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

My views were considered when decisions were being made.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

The situation was handled in a fair manner.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

How would you rate the overall fairness with which issues and decisions that came up today were handled?

1	2	3	4	5	6	7
Not Fair at All						Very Fair

I feel in control of this situation.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I am certain how many points each generated object use will be worth.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I am certain how many points I will earn by the end of today's session.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

I feel uncertain about what is required of me to complete the upcoming task.

1	2	3	4	5	6	7
Not at all						Completely

I feel taken by surprise.

1	2	3	4	5	6	7
Not at all						Completely

I feel I am unable to function well on the task I am going to complete.

1	2	3	4	5	6	7
Not at all						Completely

Uncertainty will interfere with my performance.

1 2 3 4 5 6 7
Strongly Strongly
disagree Agree

I feel I have all the information needed to complete the upcoming task.

1 2 3 4 5 6 7
Strongly Strongly
disagree Agree

Appendix G: Study 2 Script (Personal Voice/Group Voice/No Voice)

Hello, my name is _____. I am the researcher for this experiment. The first thing we need you to do is complete an Informed Consent form. Please read it over and sign it if you agree to participate. I will collect them when everyone is done.

Pass out INFORMED CONSENT FORM

Collect INFORMED CONSENT FORM

Today you are going to take part in a study on human creativity within a group context. Specifically, how being a member of a group affects your behavior. To begin, I would like to have you all fill out a demographic questionnaire. I will collect them when everyone is done. The number attached to the questionnaire is your personal ID number. Please remove the number from the questionnaire and put it into the plastic holder to your left. Please use this as your ID number whenever you are asked for one in the future, **not your student ID number**.

Pass out DEMOGRAPHIC QUESTIONNAIRE

Collect DEMOGRAPHIC QUESTIONNAIRE

Like I had said before, today you are going to be working on a task that measures performance while being a member of a group. The participants in this session will be a group and each of you is a member.

Performance on the task today will allow each of you to earn points for your group. Points are worth chances in a lottery for Best Buy gift cards at the end of the semester. The more points you have, the more chances in the lottery you will receive. 40 points equals 1 chance.

Each group member will separately earn points for the group. At the end of the task, your group's total earned points will be divided equally back to every member to determine lottery chances. In other words, every group member will receive the same number of chances in the lottery based on the group's total number of earned points. Therefore, the number of chances in the lottery you will receive will depend not only on your performance but on the performance of the entire group.

Questions?

However, your performance will not always guarantee earning points; there is a percentage chance you will earn zero points during the task.

Questions?

I am now passing out a description of the task today. Please read this over carefully and we will discuss it when everyone is done.

Pass out TASK DESCRIPTION

Collect TASK DESCRIPTION

Ok, now that you all have read the description of the task, let me ask you some questions.

What are the two companies asking you and your group to do for them? BRAINSTORM USES FOR AN EVERYDAY OBJECT

What do you earn by generating object uses? POINTS

What are points worth? CHANCES IN A LOTTERY FOR BEST BUY GIFT CARDS

How many points equal 1 chance? 40 POINTS

Historically, what was the going rate for each generated use? 50% CHANCE TO GET 50 POINTS PER USE

How is Craig & Co. going to allow you to negotiate with them? THERE ARE 3 POSSIBILITIES. FIRST, YOU ALL CAN NEGOTIATE WITH ME. SECOND, A RANDOMLY CHOSEN GROUP MEMBER CAN NEGOTIATE WITH ME. THIRD, THERE WILL BE NO NEGOTIATION.

Are there any questions about that???

Will you earn points for every generated use? THERE WILL BE A PERCENTAGE CHANCE YOU WILL NOT EARN POINTS

Do you have to work for Craig & Co. after we present the final offer? YOU CAN REJECT CRAIG & CO.'s FINAL OFFER AND YOU ALL WILL WORK FOR SMITH & CO AT THEIR RATE OFFERED.

Make sure all questions have been answered correctly

Now that the task is clear for everyone, I would like you to practice brainstorming ideas to get a feel for the task. I want you to please help me brainstorm some uses for a "bowl".

Write BOWL on whiteboard. Write 1., 2., and 3. Ask for 3 uses for a bowl.

Crazy = Heels of shoes or hat...Normal = Bed risers or Eat out of

Does everyone understand the task? Remember that it's okay to come up with both normal uses and more unique, unusual uses.

(Personal Voice) Now that you have a sense of what the task will be like, I've decided I'm going to have all of you negotiate with me.

(Group Voice) Now that you have a sense of what the task will be like, I've decided I'm going to have one of you negotiate with me.

(No Voice) Now that you have a sense of what the task will be like, I've decided I'm not going to have you negotiate with me.

Go to desk and act out writing offers on OFFER SLIPS

(Personal Voice) I am passing out Craig & Co.'s **first** offer. Let me know your counter-offer. I will collect them when everyone is done.

(Group Voice) I am passing out Craig & Co.'s **first** offer. If you were assigned to be your group's negotiator, let me know your counter-offer. If you were not assigned to be your group's negotiator, complete the question asked. I will collect them when everyone is done.

(No Voice) Since you will not be negotiating with Craig & Co., I am passing out Craig & Co.'s offer. Please complete the question asked. I will collect them when everyone is done.

Pass out OFFER SLIPS

Collect OFFER SLIPS

(Personal and Group Voice) While Craig & Co. considers your offers and creates its final offer, please complete this questionnaire.

(No Voice) Now, please complete this questionnaire.

Pass out PROCESS QUESTIONNAIRE

Let them complete questionnaire items

WAIT 5 MINUTES

(Personal and Group Voice) Ok, it looks like it is taking longer than expected in figuring out Craig & Co.'s final offer. To save time, let's have you guys complete the brainstorming task now and afterward Craig & Co.'s offer can be accepted or rejected. Points will still be given to everyone based on which company you all ultimately work for.

(No Voice) Ok, it looks like this is taking longer than expected. To save time, let's have you guys complete the brainstorming task now and afterward Craig & Co.'s offer can be accepted or rejected. Points will still be given to everyone based on which company you all ultimately work for.

Collect PROCESS QUESTIONNAIRE

In your packet, you will be given the name of an object and slips of paper. Your task will be to come up with uses for the object. Please write ONLY ONE use on each slip of paper and then drop the slip into a box that will be given to you.

You are to keep coming up with uses for the object until a set amount of time has passed in which no one came up with a new use. I will let you know when that time has come and the task will end.

*****pick up RED BOX AND SHOW TO EVERYONE*****

When the task is done, I will come around and have you empty the contents of your box into this container so we can determine how many points your group has earned. So, in other words, all of your slips will be mixed together and I will count up how many uses your group has come up with.

Pass out BRAINSTORMING USES PACKETS and BOXES

*Questions?
You may begin.*

Time them for 12 minutes

Ok, time is up. Can everyone please put together their unused slips and place everything back into the packet so I can pick them up.

Collect BRAINSTORMING USES PACKETS and BOXES

Debrief

Appendix H: Institutional Review Board Approval Letters



Office of Research Compliance
Institutional Review Board

March 5, 2012

MEMORANDUM

TO: Dennis Poepsel
David Schroeder

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 12-02-526

Protocol Title: *Conditional Indirect Effect of Voice on Group Performance Behaviors*

Review Type: EXEMPT EXPEDITED FULL IRB

Approved Project Period: Start Date: 03/02/2012 Expiration Date: 03/01/2013

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 400 participants. If you wish to make any modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.

210 Administration Building • 1 University of Arkansas • Fayetteville, AR 72701
Voice (479) 575-2208 • Fax (479) 575-3846 • Email irb@uark.edu



August 17, 2012

MEMORANDUM

TO: Dennis Poepsel
David Schroeder

FROM: Ro Windwalker
IRB Coordinator

RE: PROJECT MODIFICATION

IRB Protocol #: 12-02-526

Protocol Title: *Conditional Indirect Effect of Voice on Group Performance Behaviors*

Review Type: EXEMPT EXPEDITED FULL IRB

Approved Project Period: Start Date: 08/17/2012 Expiration Date: 03/01/2013

Your request to modify the referenced protocol has been approved by the IRB. This protocol is currently approved for 400 total participants. If you wish to make any further modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

Please note that this approval does not extend the Approved Project Period. Should you wish to extend your project beyond the current expiration date, you must submit a request for continuation using the UAF IRB form "Continuing Review for IRB Approved Projects." The request should be sent to the IRB Coordinator, 210 Administration.

For protocols requiring FULL IRB review, please submit your request at least one month prior to the current expiration date. (High-risk protocols may require even more time for approval.) For protocols requiring an EXPEDITED or EXEMPT review, submit your request at least two weeks prior to the current expiration date. Failure to obtain approval for a continuation *on or prior to* the currently approved expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.