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Abstract

This study aims to investigate how people in a choice situation framed as a loss communicate uncertainty to others, both during the decision making process and after the outcome is known. We looked at how people communicate their choices; whether they focus on certainty or uncertainty, and if this is affected by the degree of responsibility they have in the decision making process. The main hypothesis (H1) investigates whether people with low degrees of responsibility report that they are more certain about their decision when they are in the decision making process. H2 examines whether participants will allow themselves to express higher levels of uncertainty when they are using internally focused statements. H3 explores whether people with a low degree of responsibility indicate that they felt more certain about their decision after the outcome is known. Lastly, H4 investigates if people with low responsibility report that they are less responsible for the decision after the outcome is known. Our findings yielded some surprising as well as some predicted results. The results showed a significant but opposite direction on our main hypothesis (H1), as participants in the high responsibility group expressed higher levels of certainty about their decision. H2 and H3 did not show any significant effects, whereas H4 yielded a significant effect. Finally, the measures of impression management that we included in our study did not show any strong relationships with our dependent measures. We discuss the implications of our findings for leadership, communication, and decision making in organisations.

Part I: Introduction

1.1 Introduction

Human beings confront uncertainty on a regular basis and are often faced with situations where they have to make decisions in which the outcome of different alternatives are unknown. The recent COVID-19 pandemic provides several examples of such situations, as government and business leaders have had to make quick and impactful decisions in a highly uncertain environment where the consequences have been largely unknown and potentially devastating (Kerrissey & Edmondson, 2020). Decision makers in business and organisations also have to make decisions under uncertainty, for instance when deciding which candidate to hire for a vacant position. In situations like this, where the outcomes of choices could be negative, people may be held accountable for the choices they make, having to justify their beliefs, actions or reasons. How do decision makers choose under such circumstances, and how do they present their choices to others? These are topics we will investigate in this thesis.

Part II: Theoretical background

2.1 Uncertainty and choice

The topic of certainty versus uncertainty has been a prevalent part of the literature within the field of judgement and decision making for decades. Research from the 1960's indicates that decision-makers are risk-averse, meaning that they prefer certainty over uncertainty (Arrow, 1965; Pratt, 1964). The standard rationale in economics has been to explain risk aversion through expected utility theory, where risk aversion is derived from the idea of diminishing marginal utility for wealth (Arrow, 1965; Pratt, 1964). The theory hypothesises that a decision maker chooses among risky prospects by evaluating their expected utility value, and it was generally accepted as a normative model of rational choice (Kahneman & Tversky, 1979).

However, people are not risk averse in all situations. Later research has shown that when people are faced with a gamble involving a possible loss, they are more willing to take a risk to avoid the loss than they would be if the gamble involved a possible gain (Laughunn et al., 1980). Thus, risk preferences are reference-dependent (Kahneman & Tversky, 1979). In this sense, economic theories like

expected utility theory fail to capture certain aspects of the behaviour that decision makers use.

These ideas resulted in the development of prospect theory, which is a modified version of expected utility theory that accounts for several of its violations. In particular, prospect theory predicts that decision-makers will engage in uncertainty-seeking behaviour when they have to choose among value decreasing options, but that they exhibit uncertainty-averse behaviour when a gain is the likely outcome relative to the status quo (Kahneman & Tversky, 1979).

Tversky and Kahneman (1981) applied the famous loss-frame version of the Asian Disease problem to illustrate a situation in which uncertainty-seeking behaviour, or choosing chance over certainty, was the dominant behaviour. Participants were provided with two options, one in which 400 people would die, and another in which there was a $\frac{1}{3}$ probability that nobody would die and a $\frac{2}{3}$ probability that 600 people would die. 78% of the participants preferred the second option, thus choosing chance over certainty (Tversky & Kahneman, 1981). This gave birth to the term loss aversion, which describes prospect theory's non-linear value function which is steeper in the negative than in the positive domain (Tversky & Kahneman, 1981). In other words, loss aversion is the psychological effect of losses looming larger than gains, and prospect theory explains uncertainty-seeking behaviour as a result of loss aversion. Thus, prospect theory's convex value function in the loss domain correctly predicted a preference for the uncertain option (Leonhardt et al., 2011).

This research by Tversky and Kahneman (1981) highlights that situations involving losses may lead people to choose uncertain options. As the examples we have presented this far suggests, a lot of the research within this field tackles how decisions are made, and how uncertainty and losses influence these situations. As a consequence, we have a lot of knowledge about these aspects of decision making. However, there is a difference between making a choice in a situation where the options are either certain or uncertain, and presenting a choice situation as either certain or uncertain. We know less about this topic, and this is the question we will attempt to answer in this paper: how do people communicate choices? Do they focus on certainty or uncertainty? Is this affected by their level of responsibility in this situation?

2.2 Responsibility and accountability

According to Lerner and Tetlock (1999), accountability refers to the implicit or explicit expectation that one may be called on to justify one's beliefs, actions, and feelings to others. The term responsibility is closely linked to this, with a slight difference, as it entails a state of having a duty to deal with or being in control over something, like a decision making process at work. Thus, one can be responsible for something without necessarily ending up being held accountable for it. Furthermore, one can also be held accountable for an action without technically being the specific individual who performed or was responsible for the action itself. Responsibility and accountability have been found to influence decision and decision makers in many different ways, and are therefore central terms in this thesis.

Responsibility for harming others is also known to increase the risk of experiencing psychological stress in the form of guilt and blame (Botti et al., 2009). Furthermore, decision makers appear to be affected by the expectation of psychological stress (Crawford et al., 2002). Responsibility and accountability are therefore aspects that are of great importance in decision making processes, as people may experience higher levels of psychological stress in situations where they have a high degree of responsibility. This is suggested in several studies, where we see that higher levels of responsibility for an outcome can increase the probability that decision makers have of experiencing the risks that accompany psychological stress and accountability (Markman & Tetlock, 2000; Smith & Lazarus, 1990).

Pahlke and colleagues (2015) investigated situations in which decision makers are responsible for someone else's outcome, as well as their own. These scenarios were framed in terms of both losses and gains. Their studies found that being responsible for someone else's payoffs increased risk aversion when framed in the domain of gains (Pahlke et al., 2015). Contrastingly, they found that people were more risk seeking when responsible in the loss domain (Pahlke et al., 2015). In other words, their results show that responsibility led to a stronger framing effect. These findings are particularly relevant in organisational settings where people in leadership positions often have to make decisions that have an effect on their

employees, or for recruiters who have to choose between a pool of candidates for a vacant position. We see that the way in which these situations are framed has an effect on whether people are risk averse or risk seeking.

The effects of responsibility on decision making was also pointed out in a study by Charness and Jackson (2009), who explored this relationship through a study based on the game Stag Hunt. This is a common trust dilemma involving two decision makers who make a choice between two options without knowing what the other party chooses. There is a risky option (hunting a stag) that can either lead to a large reward (the meat from a stag) or no reward at all. This is because both parties have to go with this option in order for there to be a reward, seeing as you need two people to hunt a stag. Thus, players run the risk of not receiving any reward if the other party chooses the second option (hunting a hare). Hunting a hare guarantees a smaller reward, but is considered a safer option because one party can accomplish this alone (Charness & Jackson, 2009).

In the experiment conducted by Charness and Jackson (2009), both decision making groups consisted of two people, meaning that there were four players in total. However, one member of each pair figured as a dictator who had to make a decision unilaterally on behalf of the group, thus being responsible for the welfare of the other (Charness & Jackson, 2009). The findings from this game were compared to a game where every participant made a decision on behalf of only themselves. The findings indicate that about one-third of the population is susceptible to the effects of being responsible for someone else's welfare, taking on less risk when deciding on behalf of a group than when making a decision for oneself (Charness and Jackson, 2009). This indicates that people are more risk-averse when being responsible for others, compared to situations in which they are responsible for just themselves.

Another framework that illustrates the role of accountability in decision making was introduced by Jermias (2006). He argues that commitment to a certain course of action can cause a search for information that is biased in favour of the chosen alternative, integrating accountability as a strategy for reducing overconfidence and resistance to change. Thus, when people get negative feedback regarding their decisions, they will evaluate if they are responsible for the decisions and if they

are accountable for the negative outcomes. If they are not responsible for the decisions, people will allocate the negative outcomes to external sources (Jermias, 2006). On the other hand, if they are responsible for the decision, but are not accountable for the negative consequences, they will rationalise their behaviour, which in turn leads to overconfidence and resistance to change. However, if they are both responsible and accountable, they will engage in more objective evaluation of alternative choices and be less affected by their prior decisions (Jermias, 2006). This illustrates how accountability has an effect on how people judge the outcomes of their decision.

2.2.1 Responsibility aversion

Leonhardt and colleagues (2011) argue that uncertainty-seeking behaviour may not only be a result of loss aversion, but also the result of a decision makers' desire to avoid the risk of responsibility by reducing their causal role in the generation of outcomes. This phenomenon is called responsibility aversion (Leonhardt et al., 2011). It entails that as opposed to certain options, uncertain options weaken the decision maker's causal role in the generation of outcomes because the outcomes are in part determined by chance factors. The presence of chance increases indirect agency on behalf of the decision-maker and lessens his or her perceived risk of responsibility (Leonhardt et al., 2011).

Through five studies, Leonhardt and colleagues (2011) found support for responsibility aversion being a motivation behind uncertainty-seeking behaviour. In one of these studies, the authors tested the hypothesis that decision makers who must choose among negative options that affect others, prefer the option that offers the greatest amount of indirect agency over the option that offers the largest possibility of lessening a loss (Leonhardt et al., 2011).

This was tested through a scenario experiment called the "Soldier problem", which offered participants three different options of pretty similar values: (1) a certain option that offered no possibility of lessening the loss, (2) an uncertain option that offered the largest possibility of lessening the loss and some indirect agency, and (3) an uncertain option that offered the largest amount of indirect agency and some possibility of lessening the loss (Leonhardt, 2011). In the scenario, participants were told that they had to assign a soldier to one of three

battle locations by handing him a bus ticket. The first ticket (1) would send him to a certain location (called T), where the likelihood of death was 60%. The second ticket (2) would send him to one of two locations, where one location (called H) was estimated as offering a 60% chance of death, and an 80% chance of death for the other (called E). The final ticket (3), would send the soldier to one of the three different places outlined above (T, H, or E), thus offering the greatest amount of indirect agency. The results from the study gave support to the hypothesis, seeing as 60.7% of the participants preferred option 3 (Leonhardt et al., 2011).

Based on these findings, chance can be perceived as a secondary agent which facilitates the perception of indirect harm which in turn lessens the perceived risk of responsibility (Fisher & Ravizza, 1998; Paharia et al., 2009; Royzman & Baron, 2002). The idea that secondary agents can lead to a diffusion of responsibility was illustrated by Milgram (1974), in his famous experiments on obedience. He included an experimental confederate in the form of an authority figure in these experiments. The confederate told participants that they had to distribute shocks of varying strengths to a third person, who was also an experimental confederate. Milgram (1974) found that participants gave more shocks to the victim and experienced smaller amounts of psychological stress when there was an experimental confederate present who told them what to do, which indicates that they felt less responsible for distributing the shocks.

Leonhardt and colleagues (2011) argue that secondary agents can diffuse responsibility by creating an indirect causal pathway between the primary agent (the decision maker) and those affected by the outcome. Chance can in this sense work as a secondary agent, because decision makers may perceive that choosing an uncertain option lessens the burden of responsibility compared to when choosing a certain option. It removes choice from the decision maker, and onto something unknown which is out of their control (Beattie et al., 1994). When choosing among negative outcomes on behalf of others, responsibility increases the decision maker's exposure to risk. Therefore, lessening the responsibility for outcomes can decrease the decision makers' chances of experiencing the risks that are caused by responsibility such as psychological stress and accountability (Markman & Tetlock, 2000; Smith & Lazarus, 1990).

Tykocinski and colleagues (2017) propose a similar view, where involving chance in one's decisions may serve a strategic impression-formation function. In the domain of losses, actors might embrace the chance to distance themselves from the outcomes and deflect possible blame. On the other hand, given potential gains, actors might avoid uncertainty to increase their association with valued outcomes. In other words, the authors argue that people want to claim responsibility (get credit) for positive outcomes and avoid responsibility (avoid blame) for negative outcomes, and use uncertainty strategically for this purpose. Tykocinski and colleagues (2017) tested this assumption by manipulating the level of actors' personal responsibility for the outcomes of a decision. The results of their four studies indicated that when personal responsibility is high, the original framing effect is replicated (Tykocinski et al., 2017). For instance, there was greater risk-taking when choices were framed in terms of losses rather than gains. However, when actors experienced low personal responsibility for the outcomes due to the assigned role or decision circumstances, the classic framing effects were eliminated (Tykocinski et al., 2017).

In some situations, chance might be an unwelcome partner. Considering possible positive consequences, we try to strengthen our association with desirable outcomes by avoiding uncertainty. When the credit for positive outcomes is to be assigned it is in our best interest to appear capable rather than lucky. Therefore, Tykocinski and colleagues (2017) investigated the idea that the degree to which we allow chance to play a central role in our decisions might serve external impression formation motives. By recruiting chance, we are distancing ourselves from negative outcomes, and by avoiding it we strengthen the link between our actions and their positive outcomes. According to Tykocinski et al. (2017), this tendency to selectively recruit chance as an external intermediary between our choices and their outcomes based on the valence construal of the expected outcomes contributes to the established framing effect in decisions, including a choice between risky and certain options. In other words, according to both Leonhardt et al. (2011) and Tykocinski et al. (2017), people may seek uncertainty to avoid responsibility for negative outcomes.

However, findings vary regarding whether choosing a risky option is an effective strategy for decision makers who seek to avoid responsibility for potential failures (Nordbye et al., 2018). As mentioned previously, choosing a risky option might leave the final outcome to chance factors, but the decision-maker can still be held accountable for choosing risk (Leonhardt et al., 2011). Additionally, it is unclear whether landing on a risky choice is perceived as a responsible choice. Nordbye and colleagues (2018) investigated the assumed relationship between responsibility and risk-taking by distinguishing between two different types of responsibility, namely *being responsible for the outcome* (R1) versus *acting responsibly* (R2). Four experiments were conducted, in which participants were introduced to scenarios where decision makers faced a choice between a risky/uncertain option and a riskless/certain option, framed in terms of losses or gains (Nordbye et al., 2018). The results indicated that decision makers who chose the risky alternative were judged to have acted in a less responsible way (R2), while still being held equally accountable for the outcome (R1). Choosing a risky (uncertain) option did not excuse decision makers from blame, although they were less in control than those who chose the riskless option. Furthermore, risky decision makers were also judged to be more personally involved (Nordbye et al., 2018). The dissociation between R1 and R2 ratings was in accordance with the findings of earlier studies and provides a more nuanced view of the supposed relationship between responsibility aversion and risky choices.

The study by Nordbye and colleagues (2018) stands in contrast to the findings in the literature we have reviewed this far, as it highlights that decision makers are seen as acting in an irresponsible way while being held equally accountable for the outcome. In other words, this article offers a different and important perspective within the field of uncertainty and accountability in decision making. However, Nordbye and colleagues (2018) research looks at how participants judge another person as a decision maker, which is different from cases in which the participants are told to make the decisions themselves before indicating their own degree of responsibility and uncertainty, which is what we saw in the studies of Leonhardt and colleagues (2011) and Tykocinski et al. (2017). In our thesis, we will focus on how people themselves choose between options and how they communicate the (un)certainty of their choice to other people. Nevertheless, we find it important to mention that responsibility may mean different things in

different contexts, and that the choices people make and the way other people judge those choices may also differ.

2.3 Uncertainty communication and impression management

The studies we have reviewed up until this point look at choice situations where the level of uncertainty is already identified. However, it is also interesting to investigate how leaders and employees communicate uncertainty when making a decision, and whether they are open about their uncertainty or if they exaggerate their level of certainty. An interesting aspect to consider here is how one communicates uncertainty to others and how this may differ from the uncertainty one actually experiences in private. Communication of uncertainty was investigated by Haran and colleagues (2022), who wanted to see how being in the role of an advisor affects the way confidence is expressed. This was researched through five studies testing different hypotheses.

In one of these studies, participants made a series of predictions either privately or as advisors to other participants who were about to perform the same prediction task (Haran et al., 2022). A further distinction was made by adding a high certainty condition and a low certainty condition. In the high certainty condition, expressing higher confidence makes the advice more helpful by guiding the advisee more in the preferred direction, with little risk of misleading the advisee. On the other hand, the uncertain condition does not offer such low-risk opportunities for strong recommendations (Ache et al., 2020). Thus, Haran and colleagues (2022) hypothesised that participants who were assigned the role of advisor would only express higher confidence in the high certainty condition. The results provided support for this hypothesis, as advisors in the low-certainty environment were just as cautious as participants who made their judgments privately. This trend was replicated in a later study which tested the robustness of the effects that was found in the initial study (Haran, et al., 2022). These findings implicate that the certainty one feels in private can be different from the certainty one expresses to others in an advisory role. It is possible that there is a difference between these two aspects in other decision-making situations as well, like the one we will present to our participants.

2.3.1 Impression management

Impression management, which is a process where people seek to influence the image others have of them, is also an interesting aspect to consider when looking at how people communicate uncertainty to others (Rosenfeld et al., 1995).

Impression management refers to the several ways in which individuals try to control the impressions others have of them such as their motivations, behaviour, morality and a number of personal attributes like intelligence, dependability and future potential (Rosenfeld et al., 1995). The impression management perspective presumes that being perceived in a favourable manner by others is a basic human desire (Rosenfeld et al., 1995).

In an effort to “facilitate the organisation” of impression management research, Jones and Pittman (1982) developed a broad taxonomy of the topic that was aimed at capturing the wide variety of impression management behaviours that had been identified in previous research. To do so, they categorised five theoretical groupings of impression management strategies that individuals commonly use. Their taxonomy includes: self-promotion, where individuals highlight their abilities or accomplishments in order to be seen as competent by others; ingratiation, where individuals do favours or use flattery to evoke an attribution of likability from observers; exemplification, where people self-sacrifice or go above and beyond the call of duty in order to gain the attribution of dedication from observers; intimidation, where people signal their power or potential to punish in order to be seen as dangerous by observers; and supplication, where individuals advertise their weaknesses or shortcomings in order to evoke an attribution of being needy from observers (Jones & Pittman, 1982).

We are interested in looking closer at self-promotion and supplication, because the desired outcome of these behaviours is to appear competent (self-promotion) and needy (supplication), which are particularly relevant when looking at an uncertain situation in which individuals have to make a decision with varying degrees of responsibility before reporting their level of certainty (DuBrin, 2011). This idea is also in line with the study by Tykocinski and colleagues (2017), where uncertainty served as an impression management strategy. Being very uncertain before knowing the outcome of the decision can in this sense be related

to supplication, since it signals to others that you are unsure and might need help from others. A statement of certainty on the other hand can perhaps be attributed to self-promotion – I made a choice, and I know what I am doing. These two subscales are therefore particularly interesting for our study because we know that our scenario is framed in a loss-domain. On the one hand, this might lead participants to elicit the impression that they are competent. On the other hand, they might take a different approach in which they want to appear as if they are in need of help when making such a decision.

Through five studies, Bolino and Turnley (1999) found support for the measurement scale of Impression management that was developed based on the taxonomy created by Jones and Pittman (1982). The advantages of this scale is that it can be used in organisations, that it is based on the existing theory of impression management, and that it represents the full domain of impression management that employees are most likely to use in an organisational setting (Bolino & Turnley, 1999). Furthermore, the scale was developed using samples where individuals differed in terms of gender, age, hierarchical status, function, and the type of organisation for which they worked. As a consequence, the scale should have broad applicability. This was illustrated in a study by Karam and colleagues (2016), who validated the five factor model of Bolino and Turnley's (1999) Impression management measurement scale in a South African context, and further indicates that the scale is a good and broad measurement tool of impression management.

Decision makers may experience and communicate uncertainty before they make a choice. Oftentimes they also reflect upon their choice after the outcome is known, and it is well known that people may see things quite differently in hindsight. Hindsight bias refers to the belief that one could have more precisely predicted past events than is actually the case (Pezzo & Pezzo, 2007). It will be interesting to see if this plays a role in our loss scenario. Pezzo and Pezzo (2007) claim that we cannot learn from our mistakes, and that if failure to be surprised by the past leads us to overestimate what we know, we have little reason to change our beliefs. A number of studies indicate that reduced or lack of hindsight bias can lead to negative self-relevant outcomes (Pezzo & Pezzo, 2007). Evidence shows that participants that produced counterfactuals about controllable features of an

event were more likely to report increased perceptions of control regarding the event (Markman & Tetlock, 2000). These findings are in accordance with a number of studies assuming that the perception of personal control has positive effects, whereas the perception of a loss of control results in negative effects (Markman & Tetlock, 2000).

2.3.2 Different ways of expressing (un)certainty

Løhre and Teigen (2016) argue that probability statements can appear to reflect either (a) internal uncertainty, based on the speaker's personal level of knowledge and level of judgement or (b) external uncertainty, emerging from the operations of causal factors and random processes in the external world. A number of researchers propose that the difference between external and internal uncertainty is reflected in the language (Kahneman & Tversky, 1982; Teigen, 1988). In particular, Fox and Ülkümen's (2011) research show how phrases that suggest different sources of uncertainty are used by speakers and understood by listeners when engaged in conversations about uncertain outcomes. For instance, they distinguished expressions such as "I'm 90% sure", "I'm reasonably confident" or "I'm not sure" as communicating epistemic (internal) uncertainty, while expressions such as "I think there is a 90% chance", "I'd say there is a high probability" or "there is a small chance" communicating aleatory (external) uncertainty (Fox & Ülkümen, 2011).

Løhre and Teigen (2016) completed several experiments testing (un)certainty statements with an internal focus ("I am X% certain") and comparing these to external statements like "It is X% certain" in the context of uncertain situations. In one of these experiments, participants were asked to talk about the relegation battle in the Norwegian Premier League, indicating their level of (un)certainty concerning which teams were likely to be relegated using either internal or external statements. The results from this study indicate that people reported a higher degree of certainty using internal statements compared to external statements (Løhre & Teigen, 2016). Overall, the five studies showed that internally focused statements were perceived as different from externally focused statements, and the writers argue that there are at least two main reasons for this: (1) seeing as internal statements are person-dependent, they might be seen as more variable and therefore less trustworthy, while also (2) involving the speaker to a

larger degree, highlighting their commitments and making them more accountable for their statements (Løhre & Teigen, 2016). Contrastingly, external statements are seen as more objective and therefore more reliable, while being less informative of the views of the speaker (Løhre & Teigen, 2016). These different ways of communicating uncertainty may also be important for how uncertain decisions makers allow themselves to be. A person making a choice could perhaps more easily admit that there are external uncertainties rather than stating that he or she is internally uncertain about the choice.

2.4 The current study

In this study we are interested in exploring how people who experience a choice situation framed as a loss communicate uncertainty to others, both when they are in the decision making process (before they know the outcome) and after knowing the outcome of their decision. This differs from previous studies which have been modelled on Tversky and Kahneman's (1981) Asian Disease problem, where people make a choice between a certain and an uncertain ("risky") option, where the level of uncertainty is pre-defined by the researchers. In contrast, in our study we will have people choose between two options that we aim to keep relatively equal, leaving participants in a choice situation that involves a high degree of uncertainty. This is because we are interested in measuring whether different degrees of responsibility have an effect on how participants report their level of uncertainty during and after making a decision. Thus, we are interested in looking at how people communicate their choices; whether they focus on certainty or uncertainty, and if this is influenced by the degree of responsibility they have in the decision making process. The scenario, measurement items and hypotheses we use to investigate these aspects will be derived from different theoretical branches, who all relate to Tversky and Kahneman's prospect theory to some degree. These will be presented in the following.

Our first and main hypothesis (H1) is that people with a low degree of responsibility will report that they are more certain about their decision when they are in the decision making process compared to people with a high degree of responsibility. This hypothesis is based on studies showing that decision makers may choose uncertain ("risky") options in order to avoid responsibility in the loss domain (Leonhardt et al., 2011; Tykocinski et al., 2017). One could then expect

that those who have higher responsibility may also want to communicate higher uncertainty to downplay their role in case of a negative outcome. It is also in line with studies implying that lessening the responsibility for outcomes might reduce decision maker's probability of experiencing the risks connected to psychological stress and accountability, which we predict will result in higher levels of certainty (Markman & Tetlock, 2000; Smith & Lazarus, 1990).

Hypothesis 2 (H2) predicts that participants will allow themselves to express higher levels of uncertainty when they are using internally focused statements. This hypothesis is based on research that suggests that the differences between external and internal uncertainty is reflected in language (Kahneman & Tversky, 1982). More specifically, studies show that internally focused statements are person-dependent and involve the speaker to a larger extent, which in turn makes them more accountable for their statements. Conversely, external statements appear to be more objective and less informative of the views of the speaker (Løhre & Teigen, 2016). Thus, one could expect that people would be especially prone to not appear fully certain when this certainty is attributed to themselves and they are making a choice in the loss domain.

Furthermore, we hypothesise (H3) that people with a low degree of responsibility will indicate that they felt more certain about their decision after the outcome is known compared to people with a high degree of responsibility. This prediction is based on the rationale that states that losses loom larger than gains and that when people get negative feedback regarding their decisions, they will evaluate if they are responsible for the decisions and accountable for the negative outcomes. If they are less responsible for the decision, they will allocate the negative outcomes to external sources, which we predict will lead participants in the low responsibility condition to report higher levels of certainty about their decision (Jermias, 2006).

Lastly, we also hypothesise (H4) that people with low responsibility will report that they are less responsible for the decision after the outcome is known. Testing this is a way for us to see if our experimental manipulation of responsibility has worked for their purpose.

Part III: Methodology

3.1 Methods

Our chosen method for this project is quantitative, seeing as we will attempt to measure a social phenomenon through the collection and analysis of numerical data (Bryman & Bell, 2015). Our approach is therefore a deductive one, in which we will test the hypotheses outlined previously. The research will be conducted through presenting our participants with a choice scenario that we have developed in collaboration with our supervisor, and using measurement scales derived from other researchers.

3.2 Methodological considerations

Our goal was to collect data from approximately 150 people, in order to increase the precision of our findings and because this sample size was in line with the research projects we reviewed in preparation for this project, like Nordbye and colleagues (2018). We also did a power (sensitivity) analysis, which shows that with this sample size, we would have 80% power to detect a main effect of responsibility (which is our main interest) of $d = 0.46$, given an alpha level of 0.05. Seeing as our research questions and hypotheses do not identify any particular population, we distributed our survey through social media platforms in order to reach a diverse sample of people without any specific job titles, backgrounds, or affiliations. Our sample is therefore a convenience sample because it is available to us through its accessibility (Bryman & Bell, 2015). This enabled us to gather our data in an efficient manner, given the time constraints and lack of resources that we had in this research process. We are aware of the high level of sampling error that convenience sampling might cause. Results of a convenience sampling often provide poorer representation of the actual population of interest, making it hard to replicate the results.

Participation in our project was 100% voluntary and anonymous, seeing as we did not collect any direct or indirect personal information about our participants. Before starting the survey, participants read an information sheet in which they received information about this. At the end of the information sheet, we ensured that participants had read and understood the information about the research project, before giving their informed consent. Thus, we followed the ethical research principles regarding how one should deal with human participants

(Bryman & Bell, 2015).

It is important to evaluate the quality of the research when designing, conducting and evaluating a study. Reliability, validity, and replication are three of the most important evaluation criteria when doing research (Bryman & Bell, 2015).

Reliability concerns itself with whether the findings of a particular study are repeatable, and if the measures are consistent over time. This is of particular interest in a quantitative study like ours because we want to ensure that our measures are stable and consistent when we collect data from more than 100 different participants (Bryman & Bell, 2015). Our chosen measures are highly influenced by our review of the relevant literature, and most of the scales are derived from other researchers.

In particular, our measures of impression management are derived from Bolino and Turnley's (1999) Impression management measurement scale that was developed based on a taxonomy by Jones and Pittman (1982). However, given that our population is people in Norway, we translated our survey to Norwegian in order to make sure that participants fully understood our scenario and the accompanying questions. This decision also forced us to translate our reliable measurement items. This translation could have an effect on our findings, given that none of our scales have been translated into Norwegian previously. By doing this, we run the risk of losing some of the meaning of the original items, meaning that they might not be as reliable as the original ones in English. However, we attempted to stay as close as possible to the original items, and since Norwegian and English belong to the same family of languages, this is less complicated than in some other instances.

Reliability is closely linked to the concept of replicability, which is another important evaluative quality of a study (Bryman & Bell, 2015). The replication of a study is crucial because it is the only way in which others can evaluate the reliability of a measure of a concept. Thus, the procedures that have been performed in any research must be replicable by someone else in order to ensure its reliability (Bryman & Bell, 2015). By being thorough and open about how we conducted our study, we have ensured that our research is replicable. The full

materials for the study is attached in **Appendix A**, and the data file will be posted on an online repository after the thesis has been graded.

Finally, validity concerns itself with the integrity of the conclusions that we collect from our research (Bryman & Bell, 2015). Amongst other things, it concerns itself with whether we actually measure the concepts that we set out to measure, and if the conclusions we draw from our findings are well grounded. By using scales, measurement items, and variables that have been used previously, we strive to uphold this integrity. However, the translation of our survey into Norwegian could also have an effect on the validity. As mentioned, we might lose some of the meaning by translating the items, and the way items are worded could influence how participants interpret and respond to them.

As mentioned, convenience sampling constitutes a type of non-probability sample in which people are sampled simply because they are a convenient source of data for the researcher (Bryman & Bell, 2015). A problem with this sampling strategy is that it is impossible to generalise the findings because we do not know exactly what the population is or if the sample is representative (Bryman & Bell, 2015). Since we recruited the participants through our own social channels, the majority of our responses included people we knew, and a lot of them are other students. This became apparent when looking at our demographics, as 85% had or is in the process of completing some sort of university/college education. This might have affected the validity and generalizability of our study, seeing as students are likely to think and act differently than the rest of the general population (Bryman & Bell, 2015). Students usually have higher socio-economic resources than the general population, and they are also more inclined to use more than the average cognitive effort to give the right answer (Bryman & Bell, 2015).

However, a convenience sample that primarily consists of other students has some advantages. Students, like the ones at our business school, are close to entering life at work, and will probably face scenarios or situations that are similar to the ones we will be outlining in this experiment. It is also worth mentioning that students in Norway are not too different from regular people, seeing as every student can receive student loans through Lånekassen independently of their socio-economic background. One can therefore argue that Norwegian students are not as different from the rest of the population compared to students in other

countries.

Furthermore, participation will be voluntary, which might impact the results of our research. There are differences between people who choose to participate in a survey and people who choose not to do so. This voluntary bias can affect the research results and cause a threat to the validity of the study (Bordens & Abbott, 2014). Biases in the sample due to voluntary participation can threaten both internal and external validity. In particular, internal validity can be affected when the characteristics of voluntary participants influence the effect of the independent variable. Thus, we might get a result that is partly caused by the selected sample of subjects in the study (Bordens & Abbott, 2014). The external validity can be threatened because the results from the study cannot be generalised to populations other than the population of volunteers. This might lead to research results not being valid for people in general. Therefore, it is extremely important with thorough considerations in advance regarding which factors might be essential in the study (Bordens & Abbott, 2014).

3.3 Participants

Table 1: Sociodemographic characteristics of participants

	<i>n</i>	%
Gender		
Female	82	56
Male	63	43
N/A	2	1.4
Highest educational level		
High school / vocational school	16	11
Certificate of apprenticeship	4	2.7
University or college education of 4 years or less	51	34.7
University or college education of more than 4 years	74	50.3
Other	2	1.4
Age		
18-25	73	49.7
26-35	41	27.3
36-45	7	4.9
46-73	26	17.8

Note. $N = 147$. Participants were on average 31.5 years old ($SD = 11.95$)

We recruited a convenience sample of Norwegian participants by sharing a link to our survey on social media. The data was collected using an online survey created on Qualtrics. We received a total of 244 responses, but 89 of these were incomplete. After excluding 89 incomplete surveys, we ended up with 155 respondents. 8 of these respondents were excluded, because they did not answer the attention checks at the end of the survey correctly. Data from 147 participants (63 male, 82 female, 2 who did not want to specify their gender) were used in the analysis. As shown in **Table 1**, the participants were generally young (78% were 35 or less) and educated (85% had at least some college education).

3.4 Procedure

Participants in our study were presented with a scenario where they were asked to imagine that they had to make a choice between two candidates applying for a vacant position in a company that they work for. The person they chose for the position would take over as the leader of a project that is currently struggling. If the project failed, the company would be in large financial troubles and would most likely have to fire several employees. In other words, this scenario is in the loss domain, where they have to make a choice to try to avoid a loss. We used a scenario in the loss domain since decision makers tend to choose uncertain or risky options to avoid responsibility in loss situations. After reading this information, participants were presented with the profiles of the two candidates, which is presented in **Table 2**. The two candidates have quite similar profiles – although they have different strengths and weaknesses (e.g., A has better communication skills while B has better leadership skills), both receive a total score of 27 points if you summarise the numbers from the four skills.

Table 2: *Information about candidates presented to participants*

	Candidate A	Candidate B
Experience	3 years	3 years
Leadership skills	7/10	8/10
Communication skills	8/10	6/10
Technical skills	6/10	5/10
Administrative skills	6/10	8/10

This was done deliberately, as we wanted to create an uncertain situation where the decision was as close to a coin flip as possible. It was not of vital importance who our participants chose in this situation, as the candidate they chose would ultimately fail either way. The interesting thing to investigate was whether the degree of responsibility that participants were given would have an effect on their level of uncertainty before and after knowing the outcome of the decision, and how the negative outcome would affect their reported feelings of responsibility. We used a 2 x 2 between subjects design with random assignment to different conditions. The first between subjects factor was the level of responsibility (low vs. high), and the second was the type of uncertainty (internal vs. external).

Before choosing a candidate, participants were randomly assigned to one of two conditions. 75 participants were told that they were being asked to make the

decision of who the company should hire on their own, giving them a high degree of responsibility. 72 participants were told that they and several others had been asked to voice their opinion on who the company should hire, giving them a low degree of responsibility. Note that this single sentence (“You are responsible for making the decision of who the company hires” vs. “You and several others are asked to voice your opinion on who the company should hire.”) is the only difference between the two conditions, making this a relatively subtle manipulation of responsibility. The two conditions are linked to Hypothesis 1 (H1), which states that low responsibility leads people to report more certainty about their choices in the decision-making process. Or stated differently, that a high degree of responsibility should make people more likely to communicate more uncertainty about a choice to others. After making their decision, participants were asked to write one or two sentences about why they made the decision they made. This was done in an attempt to increase engagement in the decision. By making them write down a reason behind their decision, we wanted our participants to think carefully through their choice and possibly induce a higher degree of uncertainty because the decision was supposed to be close to a coin flip. It would also be helpful to read their reasoning in the event that the two candidates were not as similar as we intended.

To measure the level of (un)certainty participants would express about their decision (Hypothesis 1) participants read the following information: “Your closest leader asks you what you think of the decision you have made. Pick the number between 1 and 7 that best fits what you would say to your closest leader about this decision”. Again, participants were randomly assigned into one of two conditions. 73 participants were assigned to the internal uncertainty condition, in which the alternatives were formulated from an internal and subjective perspective: “1: I am very uncertain if the candidate I chose is the best” and “7: I am certain that the candidate I chose is the best”. 74 participants were assigned to the external uncertainty condition, where alternatives were formulated from an external and more objective perspective: “1: It is very uncertain if the candidate I chose is the best” and “7: It is certain that the candidate I chose was the best.” The wording of these items were derived from a study by Løhre and Teigen (2016). The two uncertainty conditions are linked to Hypothesis 2 (H2), which states that participants will allow themselves to express higher levels of uncertainty when

they are using externally focused statements. We also wanted to examine whether there was an interaction effect between external/internal uncertainty and the two levels of responsibility.

After participants had indicated their level of uncertainty, they were told on the next page of the questionnaire that “the candidate you chose was hired in the vacant position. After a couple of months, it became apparent that the person did not fit the position. The project failed, which led to very negative consequences for the company.” Thus, all participants were told that the outcome of their decision was negative. Following this information, participants were asked to indicate what they thought of their decision after knowing how the candidate performed. This was measured through five statements using a 7-point scale (1 = Strongly disagree, 7 = Strongly agree). The post outcome items were as follows:

Post Outcome Item 1: It was difficult to predict the outcome of the decision

Post Outcome Item 2: The outcome of the decision was inevitable

Post Outcome Item 3: I feel accountable for the outcome of the decision

Post Outcome Item 4: I feel guilty for the outcome of the decision

Post Outcome Item 5: I blame myself for the outcome of the decision.

Items 1 and 2 were derived from a scale used by Nestler and Egloff (2009), and are thought to be valid measures of different aspects of hindsight bias, and also relate to uncertainty since more uncertainty implies less predictability and less inevitability. Although these authors measured the items on a 6-point scale, we decided to use 7. Items 3, 4 and 5 were derived from a scale used by Leonhardt and colleagues (2011), and are thought to be valid measures of accountability. These items were originally formulated in a slightly different way, but were measured using a 7-point scale. The two first post outcome ratings are linked to Hypothesis 3 (H3), which states that low responsibility leads people to claim higher certainty about a choice after the outcome is known. In other words, we would expect that those with low responsibility would agree less with items 1 and 2 than those with high responsibility. Items 3,4 and 5 are related to Hypothesis 4 (H4), which predicts that people with low responsibility will report that they are less accountable for the decision after the outcome is known. In other words, the

purpose of this hypothesis was to test whether our experimental manipulation of responsibility worked as intended.

Finally, we used items from the impression management measurement scale in order to gauge some individual differences in our sample. We used items from Bolino and Turnley's (1999) Impression management measurement scale that was developed based on the taxonomy created by Jones and Pittman (1982). We focused on items related to the supplication and self-promotion sub-scales, seeing as these were closely related to our hypotheses. We wanted to see if these scales were correlated with the uncertainty ratings given before knowing the outcome and the post outcome ratings. The items we used from this scale were measured on a 7-point scale, as opposed to the 5-point scale used by Bolino and Turnley. The anchors for this scale were (1) never behave this way to (7) often behave this way.

Self-promotion:

1. Talk proudly about your experience or education.
2. Make people aware of your talents or qualifications.
3. Let others know that you are valuable to the organisation.
4. Make people aware of your accomplishments.

Supplication

1. Act like you know less than you do so people will help you out.
2. Pretend not to understand something to gain someone's help.
3. Act like you need assistance so people will help you out.
4. Pretend to know less than you do so you can avoid an unpleasant assignment

3.4.1 Attention check

Finally, we decided to add two attention checks at the end of our survey because we wanted to make sure that participants were paying attention and reading the information and questions carefully. One of these attention checks was quite easy to miss if participants were skimming through the survey without paying close attention:

“It is important that all participants have given their full attention to the instructions in this survey, and that they have read the questions carefully. However, all participants do not do this. Therefore, in order to detect people who only skim through the information and questions, we ask you to answer the question below by picking the option “Sports”. Based on the information above, what was the subject of this survey?”

The participants were given four options: Politics, Global climate change, Criminal acts and Sports. None of these options were directly related to the survey, but based on the information they were provided, they should answer “sports”.

The second attention check was much easier, as participants were told to solve a simple maths problem. The question was to indicate the sum of $5+2$, which most people above the age of 18 should be able to answer correctly without any problems. The alternatives given were 7, 5 and 2. This attention check was directed towards people who did not take the survey seriously, or who deliberately gave wrong answers in order to mess with the data. It would simultaneously target those who did not pay attention and just clicked their way through the survey. Of the 155 participants who completed the survey, 8 of the responses were excluded because they failed either one or both of our attention checks. Although it can be argued that attention checks like this might reflect real life where certain people might not pay close attention to everything they read, we wanted our participants to give their full attention to the survey, and therefore decided to not include the 8 responses that answered these questions wrong.

Part IV: Findings

4.1 Results

4.1.1 Expressed certainty

In our analysis of expressed certainty before participants knew the outcome of their decision, we used between-group ANOVA, where the dependent variable was uncertainty, and the independent variables were the responsibility condition and the uncertainty condition. First, we tested Hypothesis 1 (H1), which predicted that people with a low degree of responsibility will report that they are more certain about their decision when they make it compared to people with a high degree of responsibility. This hypothesis was tested by including two randomised

groups in our survey, where participants in the first condition were given a high degree of responsibility, and the participants in the second condition were given a low degree responsibility.

Having been placed in one of these two groups, participants were asked to indicate which candidate they wanted to hire. This decision was meant to be close to a coin flip, because we introduced two very similar candidates who had equal years of work experience and scores equalling the same total when summarising the different tests they had been given in the recruitment process. Therefore it was very interesting to see the distribution of results we got on this item, where 118 of the 147 participants (80.3%) decided to hire Candidate A, while only 29 participants (19.7%) wanted to hire Candidate B. This caught us by surprise, seeing as we tried to create an uncertain situation where the candidates were supposed to be of equal value. The degree of responsibility did not seem to have an effect on the choice of candidate, as 59 participants (78.6%) in the high responsibility group and 59 participants (81.9%) in the low responsibility group chose Candidate A.

To try to figure out why Candidate A was the most popular choice, we decided to have a look at the explanations participants gave for their decision. Of the 118 participants who chose Candidate A, 108 of them explained that the higher score on communication was one of if not the main reason why they decided to hire this person. This was an unexpected and interesting finding, which we will discuss later.

Table 3: Means and standard deviations for the pre-outcome measure of certainty, and the five post-outcome measures.

	Low responsibility		High responsibility	
	External	Internal	External	Internal
	(n = 43)	(n = 29)	(n = 31)	(n = 44)
Expressed certainty	4.74 (1.35)	4.55 (1.32)	5.22 (.92)	4.95 (1.31)
Difficult to predict outcome	5.49 (1.14)	5.41 (1.47)	5.55 (1.06)	5.39 (1.22)
Inevitable outcome	3.00 (1.46)	2.93 (1.62)	2.87 (1.50)	3.09 (1.41)
Accountability	3.23 (1.77)	3.24 (1.68)	4.19 (1.57)	3.73 (1.75)
Guilt	2.60 (1.62)	2.90 (1.52)	3.41 (1.54)	3.34 (1.82)
Blame	2.33 (1.32)	2.45 (1.37)	3.06 (1.61)	2.80 (1.86)

After indicating and explaining which candidate they preferred to hire, participants were asked to indicate their level of certainty about this decision on a scale from 1 (very uncertain) to 7 (very certain) in a conversation with their closest leader. A 2 x 2 between-subjects ANOVA on this certainty score, with level of responsibility (low vs. high) and type of uncertainty (internal vs. external) as factors, showed a main effect of responsibility, $F(1,146) = 4.60, p = .033, \eta_p^2 = 0.03$, but no main effect of type of uncertainty $F(1,146) = 1.30, p = 0.26, \eta_p^2 = 0.01$ and no interaction between the two factors $F(1,146) = 0.04, p = 0.84, \eta_p^2 = 0.00$.

The main effect of responsibility was due to participants in the high responsibility condition actually expressing a bit more certainty ($M = 5.07, SD = 1.16$) than participants in the low responsibility condition ($M = 4.66, SD = 1.28$). Note that this difference actually goes in the opposite direction of what we hypothesised in H1.

The mean score for the low responsibility group was 4.66 with a standard deviation of 1.28. This shows that participants in this condition expressed a moderate degree of certainty about their decision before knowing the outcome, since the mean is above the midpoint of the scale (4). On the other hand, the mean score for the high responsibility group was 5.07 with a standard deviation of 1.16. This shows that participants in the high responsibility condition actually expressed slightly more certainty about their decision in comparison with the other condition, although it is not an enormous difference.

The result of the between-subject ANOVA reveals that the responsibility-condition we tested in order to answer Hypothesis 1 is statistically significant ($p < .05$). This indicates that degree of responsibility has a significant effect on the level of uncertainty participants report immediately after making the decision on who the company should hire. However, the results showed that participants with a high degree of responsibility were more certain about their decision compared to those with a low degree of responsibility. This indicates that the significant effect goes in the opposite direction of our hypothesis (H1), where we predicted that the participants in the low responsibility condition would indicate a higher level of certainty about their decisions before knowing the outcome.

The results from the 2 x 2 ANOVA reported above further showed no support for Hypothesis 2 (H2), which predicted that participants would allow themselves to express a higher level of uncertainty when they are using internally focused statements. As shown in **Table 3** there was a higher mean for the external uncertainty group, although it is marginal and not statistically significant with a p-value of .26. Additionally, the analysis indicates that there are no interaction effects between the external/internal uncertainty and the two levels of responsibility ($p > .05$). Overall, the results indicate that for Hypothesis 1 we

found an opposite but significant effect, while no significant effects were found for Hypothesis 2.

4.1.2 Expressed certainty and responsibility after the outcome

In our analysis of expressed accountability after the outcome, we used between-subject ANOVA in order to test Hypothesis 3, which predicts that participants with a low degree of responsibility will indicate a higher degree of certainty about their decision after the outcome is known compared to people with a high degree of responsibility. We also tested Hypothesis 4, which states that participants with a low degree of responsibility will report that they feel less accountable for the decision after the outcome is known compared to participants with a high degree of responsibility.

Before testing the two hypotheses, we wanted to investigate whether the post outcome ratings we used to test them were reliable and internally consistent, meaning that the items belonging to the scale were closely related to the other items in the same group. This was especially important because we translated the original items from English into Norwegian. As mentioned, we also used a different scale for items 1 and 2 than the original authors (a scale from 1 to 7 instead of from 1 to 6). In order to test this, we performed a reliability test using Cronbach's alpha, which is a measure of internal consistency (Borden & Abbot, 2014).

For the two items used to measure hindsight bias and uncertainty, we did not use Cronbach's alpha because it can be problematic to only have two items in order to check the restrictive assumptions that this reliability test entails (Bryman & Bell, 2015). Instead, we did a correlation test to check the strength of the relationship between the two variables. This resulted in a score of $-.03$, which indicates that there is almost no relationship between the two variables. This is backed up by a p-value of 0.68, which implies that this relationship is not statistically significant. This entails that items 1 and 2 measure separate things, and that they are not internally consistent.

On the other hand, the accountability subscale, consisting of item 3, 4 and 5, yielded a Cronbach's alpha of $.86$. This indicates a high degree of internal

consistency, meaning that these items largely measure the same construct. The alpha exceeds the criterion limit of .7, indicating that these three items are internally consistent (Bryman & Bell, 2015). Having looked at the internal consistency of this scale, we will now test our hypotheses.

Table 4: Means, Standard Deviations, and One-Way Analyses of Variance in Post outcome ratings and Responsibility conditions

Measure	High responsibility		Low responsibility		F(1, 146)	p
	M	SD	M	SD		
Difficult to predict outcome	5.45	1.15	5.46	1.27	.006	.94
Inevitable outcome	3.00	1.44	2.97	1.52	.004	.95
Accountability	3.92	1.69	3.24	1.72	6.34	.01**
Guilt	3.37	1.71	2.72	1.57	5.15	.02*
Blame	2.91	1.75	2.38	1.33	4.23	.04*

* $p < .05$. ** $p < .01$.

As we can see in table 3, PO1 (Difficult to predict the outcome) and PO2 (Inevitable outcome), which were thought to be measures of hindsight bias and uncertainty, show no significant effects on the responsibility condition. Participants indicated that they thought it was difficult to predict the outcome of the decision, with both groups having a mean score of around 5.5 on PO1. Thus, the difference between the two groups was minimal and not statistically significant, which is illustrated in the low F-value and the high p-value. Overall, the high mean scores on this item makes sense because we deliberately created a situation in which the two options were of pretty equal value, which again makes it hard to predict which of the candidates that would perform better in the job. The fact that participants largely agree with this statement therefore makes sense. However, we predicted a significant difference between the two groups, because

we expected that participants in the low responsibility condition would indicate a higher level of certainty about their decision after the outcome was known. On this item, that would mean that participants in the low responsibility condition would indicate that they disagreed more with the statement compared to the participants in the high responsibility condition. This was not the case, and so the degree of responsibility did not have a significant effect.

On PO2, participants indicated that they slightly disagreed with the statement saying that the outcome of the decision was inevitable, with mean scores around 3 for both groups. The differences between the mean score in the two groups were minimal, which again resulted in a low F-value and a high p-value. The mean score around 3 indicates that participants slightly disagree with the statement saying that the outcome was inevitable, which is an interesting finding. In terms of our hypothesis (H3), we would assume that participants in the low responsibility condition would indicate lower scores than the ones in the high responsibility condition, because a higher score on this item would imply a higher degree of uncertainty. This was not the case, and we can conclude that the responsibility condition did not affect the way people answered these items.

However, as shown in **Table 4**, results from our measures of accountability PO3 (Accountability), PO4 (Guilt) and PO5 (Blame), show that the degree of responsibility had a significant effect on the accountability participants report that they feel for the outcome of the decision.. The mean scores in **Table 4** indicate that participants in the low responsibility condition disagreed more with these statements than participants in the high responsibility condition, meaning that they felt less accountable for the outcome of the decision. This is in line with our hypothesis (H4), and shows that the degree of responsibility had a significant effect on how participants answered these items.

Overall, these results display no significant evidence for H3, which tested hindsight bias in relation to whether people with lower responsibility indicate more certainty about their decision after the outcome is known. On the other hand, items 3,4 and 5 show support for H4, which predicted that participants with a low degree of responsibility will report that they feel less accountable for the outcome of their decision after the outcome is known. Compared to the high responsibility

group, the low responsibility group had lower means than the high responsibility group for the three items that measured accountability. This implies that people who were assigned a lower level of responsibility also report that they feel less accountable, which further provides evidence for the responsibility construct that we applied in this study.

4.1.3 Impression management

In our third analysis, we wanted to investigate some individual differences in our sample, through the use of items from the impression management scale created by Bolino and Turnley (1999). Impression management looks at how people attempt to influence the image others have of them. This is relevant for our scenario experiment, because research indicates that people who have experienced a situation where they have performed badly or had a negative outcome might exhibit behaviours of impression management in order to avoid the social disapproval of others (Markman & Tetlock, 2000). Furthermore, the findings that people seek uncertainty in order to avoid responsibility for potential negative outcomes can also be seen as a form of impression management (Leonhardt et al., 2011; Tykocinski et al., 2017). We used two of the five subscales that are commonly used to measure this construct, namely self-promotion and supplication. First, we wanted to investigate whether the scales we used were reliable and internally consistent. Overall, the two subscales from the impression management scale resulted in a combined average score of 2.18, which indicates that participants reported that they rarely exhibit behaviours related to impression management. Cronbach's alpha was .74, which is seen as an acceptable and reliable score (Bryman & Bell, 2015).

The self-promotion sub-scale consisted of four items, and had a mean score of 2.76 with a standard deviation of .81. This indicates that participants report that they rarely exhibit self-promoting behaviours where they highlight their abilities or accomplishments in order to appear competent in the eyes of others. The Cronbach's alpha for this subscale was .82, which signifies high internal consistency. As we can see, the alpha value is higher for the subscale than the overall scale, which means that these four items are more closely associated.

The supplication scale consisted of four items, and the mean score was 1.61 with a standard deviation of .66. This indicates that participants report that they almost never exhibit behaviours in which they advertise their weaknesses or shortcomings in order to evoke an attribution of being needy from observers. The Cronbach's alpha for this subscale was .79, which implies that the subscale has high internal consistency. This alpha value is also higher than what we found for the overall scale, which means that these items are more closely linked. This trend is what we expected, because the subscales are meant to measure different facets of impression management, and this is why we decided to organise the 8 items into two separate subscales. We summarised the four items connected to each subscale into two variables, called supplication and self-promotion.

Having looked at the reliability of our scales, we wanted to investigate if there were some correlations between the two subscales of impression management, the post outcome ratings and the level of uncertainty participants reported before knowing the outcome of the decision. The calculation of a correlation shows itself in the form of a coefficient r , that varies between -1, which indicates perfect negative correlation, and 1, which indicates a perfect positive correlation (Bryman & Bell, 2015). A score closer to 0 indicates a low or non-existing correlation between two variables.

Table 5: Descriptive Statistics and Correlations for Study Variables

Variable	n	M	SD	1	2	3	4	5	6	7	8
1. Selfpromotion	147	11.03	3.25	—	.12	-.08	-.01	-.01	-.06	.05	.02
2. Supplication	147	6.44	2.64	.12	—	-.10	.19*	.05	.43	.08	-.13
3. PO1	147	5.46	1.2	-.08	-.10	—	-.03	-.04	-.06	-.09	-.21*
4. PO2	147	2.99	1.47	-.01	-.19*	.03	—	.00	.12	.03	.04
5. PO3	147	3.59	1.73	-.01	.05	-.04	.00	—	.67**	.55**	-.11
6. PO4	147	3.05	1.67	-.05	-.04	-.06	.13	.68**	—	.77**	-.04
7. PO5	147	2.65	1.58	.05	.08	-.09	.03	.55**	.77**	—	-.04
8. Certainty	147	4.87	1.23	.02	-.13	.21*	.04	-.11	-.04	-.04	—

$p < .05$. ** $p < .01$.

The results from **Table 5** indicate that the Supplication-scale has a significant correlation coefficient with PO2 (Inevitable outcome, $r = .19^*$). This relationship is positive, meaning that the variables move in the same direction: if participants

indicate that they agree that the outcome of the decision was inevitable, they are also likely to indicate that they often use behaviours related to supplication. This finding is interesting, because it indicates a relationship between a form of hindsight bias and supplication. However, a correlation below .2 is considered very low, and the association between these two variables is therefore considered as weak (Bryman & Bell, 2015). In comparison, PO4 (Guilt) and PO5 (Blame) has a correlation of .77**. This is a strong and positive correlation, which is significant at a .01 level. This makes sense given that PO4 and PO5 largely measure the same construct and therefore should have a strong association. The correlation coefficient between supplication and PO2 is still statistically significant, meaning that we can conclude that there is a relationship between the two.

Table 5 also show that PO1 (Difficult to predict outcome) significantly correlates with the Certainty rating ($r = -.21^*$). This relationship is negative, meaning that the two variables move in opposite directions: the higher degree of certainty people report before the outcome happens, the more they disagree that the outcome was difficult to predict, or put differently, the more uncertainty people communicate before the outcome, the more they agree that the outcome was difficult to predict after knowing how the candidate performed. This relationship makes sense, and is in accordance with what we expected. However, the association between the two variables is weak, meaning that the two variables are not strongly related. We did not find any other statistically significant correlations, apart from Post-outcome ratings 3, 4 and 5, which all yielded strong positive correlations with each other. This was to be expected after seeing the high internal consistency through Cronbach's alpha. Overall, these findings imply that our two items measuring Hindsight bias and uncertainty correlate with the Supplication-scale (PO2) and the Uncertainty levels (PO1) participants expressed before knowing the outcome.

Part V: Discussion

5.1 Discussion

Although topics of uncertainty and accountability have been tackled before, this study looks at these aspects from a slightly different angle. We were particularly interested in looking at how people communicate their choices in an uncertain

situation where the options are similar, and how they do it before and after knowing the outcome of their decision. Previous research using scenario experiments has often provided participants with certain and uncertain options, and have asked them which of these options they prefer, with different levels of responsibility. In this way, our approach is different, given that the alternatives themselves are meant to be equally uncertain, and the question of interest is which level of uncertainty people express. This is a topic that has gotten relatively little attention in comparison to studies of choices between more or less certain and uncertain options (Løhre & Teigen, 2022). We also used measures of external/internal uncertainty, hindsight bias, accountability and impression management to test several different hypotheses within the field of judgement and decision making.

Our findings yielded some surprising as well as some predicted results. First of all, our main hypothesis (H1) predicted that people with a low degree of responsibility will express more certainty about their decision when they are in the decision making process compared to people with a high degree of responsibility. This prediction was based on our literature review which pointed out that high responsibility often leads decision makers to choose more uncertain or risky options, due to decision makers' desire to avoid the risk of responsibility (Leonhardt et al., 2011). Another reason for this is the fact that high degrees of responsibility are known to increase psychological stress, which in turn can lead to more uncertainty. This pattern was not replicated in our findings. The results actually indicated the opposite, as participants in the high responsibility group expressed higher levels of certainty about their decision compared to participants in the low responsibility group.

Another explanation of this finding can be traced back to the topic of how one expresses uncertainty to others, as we saw in the research of Haran and colleagues (2022). Our participants were asked to express their level of uncertainty to their leader, meaning that they did not express their private feelings of uncertainty. Expressing high levels of uncertainty about a decision in such a way can possibly lead others to question one's competence, and therefore also the decision. People who voiced their opinions as one of many in the low responsibility condition might not see this consequence as very daunting given that others are also asked

to voice their level of uncertainty. If a person in a group indicates that they are very uncertain about a decision, the group as a whole might still make the right decision in the end. Thus, a person in a group may not have to deal with the fear of having one's competence questioned because the group ultimately makes the decision as a unit. This environment is not the same for people who make the decision on their own under the high responsibility condition. These participants might therefore find it more important to communicate that the decision is a good one, because the potential of ridicule is bigger. Studies by Anderson et al. (2012) can serve as an explanation of this argument, as they show that acting overconfident increases social status.

Therefore, the participants in the high responsibility condition might communicate higher levels of certainty in order to seem more competent and confident in their own ability, and as a way of increasing their social status (Anderson et al., 2012). This does not mean that the participants in the high responsibility condition actually feel more certain about the decision. We can not know if they do because we asked them what they would say to their closest leader and not how they actually feel in private. This would be very interesting to pursue in further research. If this explanation is correct, we would expect people to report approximately the same level of certainty in private regardless of their level of responsibility. However, when communicating to others, high responsibility decision makers would express higher certainty than low responsibility decision makers. Based on this explanation, this finding highlights an interesting and unexpected aspect of decision making, showing us that expressing uncertainty about a choice under different levels of responsibility is something different than choosing between certain and uncertain options.

This finding is interesting from an organisational perspective, as it may indicate that leaders and people who are given a lot of responsibility will indicate higher levels of certainty than those who do not have a lot of responsibility. In other words, responsibility might push decision makers to be more confident and perhaps overconfident in decision making processes. This is an interesting aspect for leaders and people in organisations to consider, as it provides a new view of the way responsibility affects the uncertainty decision makers communicate to others. Future research should look further into this, as it appears paradoxical that

high degrees of responsibility will lead people to choose uncertain options while also expressing higher certainty about their decision.

It is also possible that the way we framed our participants into the low responsibility condition had an unwanted effect, leading them to report higher levels of uncertainty than the high responsibility group before knowing the outcome of the decision. Participants in the low responsibility condition were told that they and several others were asked to voice their opinion on who the company should hire, without getting to know who the others recommended before being asked to indicate their level of uncertainty. While this distinction was supposed to indicate that they were not being solely responsible for making this decision, relieving them of the pressure to do so on their own, it could have affected them in a different way than what we intended. Several experiments, like the ones performed by Solomon Asch (1951), show how people's opinions can be affected by those of the others in a group, sometimes leading them to change their stance in order to conform to the opinion of the majority. This can be a result of the psychological stress that is caused by disagreeing with the majority, which leads to an increase in uncertainty over one's own abilities and reasoning (Asch, 1951). While we did not tell the participants which candidate the "several others" recommended, it is possible that the presence of a "group" of other opinions could have increased participants' level of uncertainty because they did not want to pick a candidate that the majority of others disagreed with. The fact that the participants in this condition ran the risk of disagreeing with the majority of others could have led to them to report higher levels of uncertainty than the participants who were asked to make the final decision on their own.

We also noticed that candidate A was the most popular choice when our participants had to choose one of the two, with 118 (80.27%) out of 147 participants picking candidate A. After reading through their explanations, we saw that one of the main reasons for this was candidate A's superior score on communication skills. Although we tried to make the scores on working experience and skills as ambiguous and similar as possible, our participants perceived communication skills as one of the most essential skills related to the vacant leadership position. This might indicate that these two candidates were not as similar as we predicted them to be, and that the skills we presented are not

valued as equally as we expected. If anything, it is interesting that only a minority of participants in our sample preferred candidate B, given that B had a superior score on leadership skills. One could make the argument that this is the most essential skill for a leader. However, our participants felt differently and it might have led to less uncertainty for both groups, because the majority of them felt that higher communication skills was an indicator of candidate A being the better candidate. Either way, the large difference in preference between the two candidates showed us that the decision that was supposed to be close to a coin flip really was not in reality, perhaps resulting in this not being a conflicting decision for them.

One way of combating this issue could have been to run a pilot study before distributing the final survey for data collection. A pilot study would probably have yielded similar results, showing us that there was a difference in preference between the two candidates. This could have allowed us to adjust the scores we presented of the two candidates, ultimately making the distribution of choices closer to a 50/50, which is what we intended.

When it comes to the uncertainty statements presented after the choice of candidate, we predicted (H2) that participants would allow themselves to express higher levels of uncertainty when using internally focused statements. This test did not yield a statistically significant result, meaning that the hypothesis was not supported. It is challenging to pinpoint an exact reason for this null finding, but as alluded to in the article by Løhre and Teigen (2016), different expressions might be used strategically in order to persuade the listener of one's conviction. A person who is trying to convince someone of a positive outcome in an uncertain situation might use externally-focused expressions in order to make the prediction seem more objective, while also limiting personal responsibility if it fails (Løhre & Teigen, 2016). On the other hand, using an internally focused expression might lead one to appear more involved in the decision, resulting in more positive feedback if the outcome of the decision is positive (Løhre & Teigen, 2016). This might explain why we did not see any significant differences between the two groups, because both external and internal expressions can be used strategically to one's advantage, particularly when predicting the outcome of an uncertain situation. This idea of strategy also ties into our previous argument of participants

expressing different levels of uncertainty to others than what they actually feel in private. Furthermore, we did not find any statistically significant interaction effects between the two variants of certainty and the level of responsibility.

Moreover, H3 which tested hindsight bias in terms of whether people with lower responsibility indicated more certainty about their decision after the outcome is known did not display any significant effects. We used two items (PO1 and PO2) taken from Nestler and Egloff (2009) to measure hindsight bias in our participants, but the degree of responsibility did not show any significant effects on any of these two items. However, it is important to highlight that when we checked the correlation between these two items in order to test their internal consistency, we got a weak correlation and a not significant p-value. This indicates that these two items measure different things and do not overlap in this particular case.

Our test of H4 yielded results that confirmed our predictions, showing that people in the low responsibility condition felt less accountable for the outcome of the decision. This was measured using PO3, PO4 and PO5, a subscale consisting of items measuring accountability that showed high internal consistency. The findings indicate that our responsibility conditions had the predicted effect, as people with a high degree of responsibility indicated higher levels of accountability after knowing the outcome of their decision.

Finally, the measures of impression management that we included in our study did not show any strong relationships with our dependent measures. We included items from two of these subscales because we imagined that expressing certainty or uncertainty can be used strategically to appear either competent or needy. This would also be in line with previous findings which argue that people may choose uncertain options for strategic purposes (Tykocinski et al., 2017). The only significant correlations we found was between our two items measuring hindsight bias and uncertainty, the Supplication-scale (PO2) and the Uncertainty levels (PO1) participants expressed before knowing the outcome. Thus, we only found small tendencies of this idea in the data.

The relationship between PO1 and the uncertainty rating was negative, which makes sense given that participants who indicated that they were more uncertain if the candidate they chose was the right one for the job also indicated that they agreed more that it was difficult to predict the outcome of the decision after knowing how the candidate performed. These two variables should therefore be linked, as they both measure similar aspects of uncertainty.

When it comes to PO2 and supplication, this positive relationship highlights that participants who report that they agree that the outcome of the decision was inevitable are also likely to indicate that they use behaviours related to supplication more often. One way of interpreting this relationship is that feelings of inevitability in a loss situation like this is similar to behaviours of supplication where the participants portray themselves as needy or incapable. In this sense, the measures of supplication might be related to the concept of a negative outcome being inevitable, because one can argue that they signify similar feelings of incompetence or the need for assistance (“Of course the candidate I chose failed, because I am not capable or equipped to make such a decision”).

5.2 Limitations and directions for future research

This paper has investigated several important hypotheses in relation to different levels of responsibility and uncertainty. We have also looked into salient relationships and correlations between concepts such as impression management, accountability and hindsight bias. Some of our main limitations regarding this project related to the limited time we had as well as the sample size. With a larger sample size and more time to conduct a pilot study, we could have mapped out and eliminated some of our challenges in this study, especially concerning the scenario, which had not been tested previously. It could also be interesting to distribute this kind of scenario experiment to people working with recruitment and HR. Such a scenario might be more relevant and realistic for them, and they might experience different levels of uncertainty and accountability since they have been in similar situations before.

Having gone over our findings, we have also identified some aspects that could be interesting to investigate further. One of the main ideas behind the scenario was to have two similar candidates, making the decision close to a coin flip. The idea

was that this is a kind of situation where people would recruit chance as a secondary agent in order to feel less responsible for a potential negative outcome. Therefore, it could be interesting to see if chance worked as a secondary agent, making people feel less accountable for the negative outcome (Leonhardt et al., 2011). A way to investigate whether this is the case could have been to introduce a second choice situation, with two uneven candidates: One who had great scores on the different tests, and one who had clearly worse scores. This should push the participants to choose the candidate with the best scores. After telling participants that the candidate failed, it would be interesting to see if there was any significant difference between the reported accountability in the two scenarios. We would hypothesise that participants would indicate less accountability in the coin flip scenario, compared to the scenario with two uneven candidates, because chance would work as a secondary agent that would lessen their feelings of accountability (Leonhardt et al., 2011).

It could also be interesting to include a gain-frame, where the candidate our participants choose ended up succeeding in the job. The set up would be the same as in the loss frame, although the outcome of the choice situation would be different. This would allow us to measure differences in uncertainty and accountability in a winning versus a losing situation. However, it is not easy to predict the effects of responsibility in the gain frame. Previous studies of responsibility aversion have focused mostly on the loss domain, as loss situations are especially likely to evoke concerns about responsibility and blame. In the gain domain, people might be motivated to seek credit for positive outcomes, so one possibility is that people generally would be motivated to express higher certainty in the gain domain, and perhaps especially if they have high responsibility. However, a setup like this would entail having 8 different conditions: high vs. low responsibility, loss vs. gain, and external vs. internal uncertainty. This would complicate our analysis even further, and is one of the reasons we did not end up doing it.

5.3 Conclusion

The purpose of this study has been to investigate how people communicate the degree of certainty about their choices to others in the domain of losses, with varying degrees of responsibility. This is an aspect of decision making that has not

been widely explored previously. Our research yielded some surprising results, as people with a low degree of responsibility reported higher levels of uncertainty before knowing the outcome of their decision than those with a high degree of responsibility. This finding stands in contrast to our prediction (H1), as the majority of previous research on similar topics indicates that people with a high level of responsibility are more likely to indicate higher levels of uncertainty.

This finding provides an interesting and new perspective on how people present choices, as it may suggest that different levels of responsibility elicit different responses from people with varying levels of responsibility in the domain of losses. We also found support for the prediction that people with a high level of responsibility will report that they feel more accountable for the decision after the outcome is known. Taken together, future research should look deeper into how different levels of responsibility affects the expressed uncertainty people communicate to others and the uncertainty they feel in private, particularly in loss situations.

Finally, the findings of this study provide some interesting implications for organisations and businesses. Most notably, the findings in relation to our main hypothesis (H1) suggest that leaders and people who have high degrees of responsibility might communicate higher levels of certainty than those in other positions. Thus, one can argue that high levels of responsibility pushes people in these positions to express more confidence, which in turn leads to a higher recurrence of overconfidence when they communicate their level of certainty to others. The knowledge of this effect of responsibility is important to bear in mind for leaders and other people working in an organisation. It also raises an important question: How do you make people express more uncertainty?

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Appendix A: Materials of the study

On the next few pages you will read about a decision situation that can occur at a workplace. We ask you to read this scenario carefully, and to try to respond based on how you think you would respond in a real-life situation. We are interested in your opinions.

Scenario

Imagine that you work for a company who is in the process of hiring a person for a vacant position. The person who is hired will take over as a leader for a project that is currently experiencing large difficulties, and it is very important for the company that this project succeeds. If the project fails, the company will experience financial difficulties and may have to lay off employees.

The recruitment process has narrowed the pool of applicants down to two candidates, who have been thoroughly interviewed and taken relevant tests for the position. In the table below you can see their profiles, with scores based on their performance in the interviews and tests given by the HR department.

	Candidate A	Candidate B
Experience	3 years	3 years
Leadership skills	7/10	8/10
Communication skills	8/10	6/10
Technical skills	6/10	5/10
Administrative skills	6/10	8/10

(Following this information, participants were randomly assigned into one of these two conditions)

Condition 1 (High degree of responsibility): You are responsible for making the decision of who the company hires.

Condition 2 (low degree of responsibility): You and several others are asked to voice your opinion on who the company should hire.

Question: Which of the two candidates would you like to hire?

- Candidate A
- Candidate B

Question: Please give a short reason for your decision (1-2 sentences)

Question: Your closest leader asks you what you think about the decision you have made. Pick the number from the options below that best describes what you would say to your closest leader about your decision.

(Following this question, participants will be randomly assigned into one of these two conditions)

Condition 1 (Internal uncertainty)

1 (I am very uncertain if the candidate I chose is the best) - 7 (I am certain that the candidate I chose is the best)

Condition 2 (External uncertainty)

1 (It is very uncertain if the candidate I chose is the best) - 7 (It is certain that the candidate I chose is the best)

Post outcome ratings:

The candidate you chose was hired in the vacant position. After a few months, it became apparent that this person was a bad fit for the job. The project failed, leading to large negative consequences for the company.

Question: Knowing how the candidate performed, how do you feel about your decision? Please indicate the degree to which you agree with the following statements. (1 = strongly disagree, 7=strongly agree)

PO1: It was difficult to predict the outcome of the decision

PO2: The outcome of the decision was inevitable

PO3: I feel accountable for the outcome of the decision

PO4: I feel guilty for the outcome of the decision

PO5: I blame myself for the outcome of the decision.

Impression management:

In this part of the survey we want to know a bit more about your personal attributes. Please read the statements below, and answer by thinking about how often you behave the way the statements describe. (1 = I never behave like this, 7 = I often behave like this)

Self-promotion:

1. Talk proudly about your experience or education.
2. Make people aware of your talents or qualifications.
3. Let others know that you are valuable to the organisation.
4. Make people aware of your accomplishments.

Supplication

1. Act like you know less than you do so people will help you out.
2. Pretend not to understand something to gain someone's help.
3. Act like you need assistance so people will help you out.
4. Pretend to know less than you do so you can avoid an unpleasant assignment

Demographic questions:

What is your gender?

- Male
- Female
- Non-binary / Third gender
- Do not wish to answer

What is your age, in years?

_ years

Please indicate your highest level of completed education

- High school / vocational school
- Certificate of apprenticeship
- University or college education of 4 years or less
- University or college educations of more than 4 years
- Other

Attention checks

Question:

It is important that all participants have given their full attention to the instructions in this survey, and that they have read the questions carefully. However, all participants do not do this. Therefore, in order to detect people who only skim through the information and questions, we ask you to answer the question below by picking the option “Sports”. Based on the information above, what was the subject of this survey?

- Politics
- Global climate change
- Criminal acts
- Sports

Question:

What is the solution to the math problem $5+2$?

- 7
- 5
- 2