

Advice Giving Helps Advisors Reason More Wisely about
Life Challenges and Interpersonal Conflicts

by

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Abstract

Does advice giving impact the advisor? While many studies have examined why it is helpful to receive advice, much less is known about what advisors gain when they give advice. Drawing on theories from adult development and social cognition, I propose that the act of advice giving can help advisors reason more wisely about a problem (by recognizing multiple perspectives, acknowledging a changing and uncertain world, having intellectual humility, seeking compromise, and using an outsider's vantage point). To test this hypothesis, I utilized a multi-method approach. In Study 1, I examined 20 years of longitudinal data from over 3,000 U.S. Americans and found that advice-giving tendencies predicted wise attitudes, such as the appreciation of different perspectives, openness to change, and intellectual humility. I then experimentally manipulated advice giving in Studies 2, 3, and 4, assessing how wisely people reasoned about interpersonal conflicts. In Study 2, reflections on situations in which people gave advice produced wiser reasoning compared to reflections on situations in which people dealt with a social issue on their own. In Studies 3 and 4, giving advice about a standardized scenario resulted in wiser reasoning compared to imagining the same scenario happening to them personally. Moreover, in Study 4 advice giving about one scenario also led to downstream effects for wiser reasoning in a subsequent, unrelated scenario. These studies shed light on the social and cognitive processes involved in advice giving. They also show how advice giving can be a way to cultivate greater wisdom in people's lives.

Keywords: Advice giving, wisdom, generativity, mentalization, psychological distance

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CHAPTER 1: INTRODUCTION

“This is ‘Ask a Grown Man,’ and we are going to try to answer your questions to the best of our abilities – although being grown is debatable.” – Hip hop duo Run the Jewels (2015) in an advice video for Rookiemag.com

What happens when people are asked to give advice? The above quotation comes from a series of advice videos in an online teen magazine, where celebrities received questions from teenagers and tried to give them advice. The celebrities were not trained to give advice in this context, and a number of them admitted that they did not consider themselves to be particularly wise. However, many of these advisors took the task seriously and gave insightful recommendations. This kind of scenario demonstrates how people can react when asked to give advice. For instance, the people in the above example showed intellectual humility by admitting how they might not be experts in life matters.

Advice-giving situations are not limited to online magazines or newspaper columns, as parents, friends, teachers, or supervisors could be called to give advice regardless of their background. Advice is an important part of everyday life, because few decisions are made completely alone (Bonaccio & Dalal, 2006). More broadly, sharing information with others is a key process involved in social learning and in passing on cultural information from one generation to the next (Schönplflug, 2001; Schotter & Sopher, 2003). While past research has examined what knowledge, skills, and abilities make a good advisor (e.g., Bonaccio & Dalal, 2006; Dakof & Taylor, 1990; Jungermann & Fischer, 2005), an overlooked possibility is that giving advice could also benefit the advisor. In my dissertation, I consider this possibility and specifically focus on whether advice giving promotes greater wisdom for the advisor in reflections on challenging interpersonal issues.

Advice Giving and Wisdom

In classical texts, the archetype of wisdom often appears in the form of an advisor. For instance, Herodotus' accounts of Ancient Greek history often includes advisors, who bring success to leaders that listen to their recommendations (Lattimore, 1939). The Biblical King Solomon writes that taking the advice of others leads to wisdom (e.g., Proverbs 12:15; 13:10; 19:20). And in East Asia, the Confucian scholar Xunzi specifies that advisors should know what moral behavior is and how to apply it in a given situation (Tiwald, 2012; Xunzi, 2.13; 8.11). These texts suggest taking advice leads to successful outcomes and that good advice giving involves wisdom.

Contemporary scholars have also linked wisdom and advice giving. Looking first at the philosophy of science, Maxwell (1984) proposes that simply generating and sharing knowledge is not enough to be a good scientist. People need to use knowledge in the service of wise goals, which are to promote human well-being and to help people find values in their lives. Tiberius (2008, 2016) argues that wise people make good advisors, as they are more aware of their epistemic limits. They make recommendations that are more accurate because they can comment on what they know and be more cautious on subjects about which they have less information. A number of social and developmental psychologists also share this view, as they hold that wisdom includes good judgement and the ability to give insightful counsel (Kramer, 1983, 2000; C. Peterson & Seligman, 2004; Staudinger & Baltes, 1996). These academic perspectives dovetail with the lay belief that wise people can be identified by their ability to give useful advice (Bluck & Glück, 2005; Glück, Bluck, Baron, & McAdams, 2005). Given these beliefs, people tend to evaluate advisors based on their general wisdom and expertise in life (Feng & MacGeorge,

2010). For example, people consider mentors and doctors to be wise when they give sound recommendations (Branch & Mitchell, 2011; Sosik & Lee, 2002).

Taken together, cultural narratives and recent scholarship suggest that advice giving and wisdom may be intimately linked. According to these sources, wise individuals would make good advisors. At the same time, it is also possible that advice giving can promote greater wisdom for the advisor. The path from advice giving to wisdom is particularly interesting, as few researchers have examined the cognitive benefits of advice giving for advisors (Allen, 2007). In addition, understanding the outcomes of advice giving can provide a way for people to achieve greater wisdom in their lives. In the following sections, I will describe how I conceptualize advice giving and summarize how psychologists have studied it. Next, I will give an overview of the psychological investigation of wisdom. I will then build on developmental and socio-cognitive theories to explore whether and how advice giving might facilitate greater wisdom. Finally, I will describe the aims of the current investigation and the studies that I conducted.

The Characteristics and Benefits of Advice Giving

Advice is any idea, judgement, or recommendation that a person (the advisor) offers to someone else (the recipient¹) to help them understand a situation and/or make a decision (Bonaccio & Dalal, 2006; Gino, Brooks, & Schweitzer, 2012; Sniezek & Buckley, 1995).

Advisors provide information that the recipient lacks, and this can come in the form of expertise in a topic (Jungermann & Fischer, 2005) or simply by having a different perspective (Harvey, Harries, & Fischer, 2000; Yaniv, 2004). Advice mainly provides recipients with additional information or a new way to think about a problem (Bonaccio & Dalal, 2006). In addition, advisors can also provide emotional support, such as sympathy and encouragement (Goldsmith

¹ Recipients are also called “judges” in research that focuses on how people evaluate the advice that is given to them (Bonaccio & Dalal, 2006; Sniezek & Buckley, 1995).

& Fitch, 1997; Horowitz et al., 2006; Schlosser & Gelso, 2001; Whittemore, Rankin, Callahan, Leder, & Carroll, 2000).

Prior literature on advice giving has primarily focused on the recipients. A large body of work has examined the factors that help or hinder recipients from accepting advice when it is available (e.g., Budescu & Rantilla, 2000; Dalal & Bonaccio, 2010; Gino & Schweitzer, 2008; Harvey et al., 2000; Sah, Loewenstein, & Cain, 2013; Yaniv, 2004). For instance, one cue that influences the acceptance or rejection of advice is the advisor's credibility and prior knowledge on the subject (Jungermann & Fischer, 2005). Accepting advice is often beneficial for the recipient, as the advice provides new information and alternative solutions for a given dilemma (Heath & Gonzalez, 1995). It also increases the accuracy of people's predictions and decisions (Gardner & Berry, 1995; Gilbert, Killingsworth, Eyre, & Wilson, 2009; Sniezek, Schrah, & Dalal, 2004; for a review, see Bonaccio & Dalal, 2006). In addition, actively seeking advice brings reputational benefits, as advisors are more likely to view people who seek advice as competent (Brooks, Gino, & Schweitzer, 2015). In sum, advice often benefits the recipients.

In contrast, only a few studies have examined the benefits of advice giving for the advisor (Allen, 2007). Some of these studies have focused on mentorship, which involves advice giving. This work has identified some emotional and reputational benefits for the mentor, such as personal satisfaction (e.g., Allen, Poteet, & Burroughs, 1997; Kram, 1985; Mullen & Noe, 1999; Ragins & Scandura, 1999), increased commitment to the organization (Eby, Durley, Evans, & Ragins, 2006), and career success (Allen, Day, & Lentz, 2005; Bozionelos, 2004). Other research has examined the cognitive benefits of advice giving by noting differences in how advisors process information relative to someone making a decision alone (personal decision-makers). In particular, when deliberating about a problem, advisors consider more factors that would

influence a decision compared to personal decision-makers (Jonas & Frey, 2003; Jonas, Schulz-Hardt, & Frey, 2005; Kray, 2000). For instance, Jonas and colleagues (2005) asked participants to either give advice to another person, make a decision for themselves, or decide for another person (which was comparable to making a personal decision) about what lottery prize to take home. After they or the person they were advising made a preliminary selection, the participants were presented with a list of arguments for or against those prizes. Those who gave advice were more likely than those in other conditions to conduct a balanced search for information by looking for arguments both for and against the prizes (Jonas et al., 2005). The few studies that have focused on the advisor suggest that they consider more information compared to personal decision-makers. However, it is unclear whether advice giving has any effects on other forms of reasoning, including those that are central to the psychological features of wisdom.

Prior Theories about Wisdom

Many philosophers and behavioral scientists have considered wisdom to be the pinnacle of human development and reasoning. Although scholars have long written about wisdom, only recently have they begun to formally define and measure it. Erikson (1950) describes wisdom as personal maturation in old age that comes from successfully managing the conflict between despair (i.e., regret about past mistakes and missed opportunities) and integrity (i.e., satisfaction with one's life). Specifically, he observed that people who achieve wisdom in old age are able to reflect on their past experiences and appreciate them (Erikson, Erikson, & Kivnick, 1987). Tiberius (2008, 2016) also believes that wisdom involves self-reflection, and sees this process as unfolding throughout one's life, ultimately paying off in old age. If people are constantly able to reflect on their actions, they will be able to act in ways that balance competing goals. Later in life, one can look back and be satisfied with one's past decisions.

Neo-Piagetian scholars have also approached wisdom as an advanced stage of human development. However, they see wisdom as a way of thinking about moral decisions. According to the classic Piagetian perspective, individuals nearing the end of childhood learn how to understand abstract but fixed rules that allow them to successfully interact with the world (Piaget & Inhelder, 1969). However, many social situations are ill-defined in that they are influenced by multiple factors and cannot be easily reduced to a few universal rules or solutions (Kelley, 1979; Murray & Holmes, 2009; Rittel & Webber, 1973; Santos, Huynh, & Grossmann, 2017; Schraw, Dunkle, & Bendixen, 1995). To illustrate this distinction, compare the task of comprehending the rules dictating which car moves first at an intersection and the task of figuring out how to reduce traffic jams at a specific intersection. The first task only requires an understanding of a few principles regarding traffic lights and the right of way. The second task, representing an ill-defined problem, involves discovering the social and environmental causes for traffic jams at that particular intersection and creating solutions that can successfully address them.

To address such ill-defined problems, Neo-Piagetians propose a reduced reliance on formal rules (e.g., Kitchener, 1983; Kramer, 1983; Labouvie-Vief & Blanchard-Fields, 1982). Instead, people should develop a pragmatic appreciation for the context, making decisions that are suited to a given situation. For instance, Basseches (1984) proposes that in the latter stages of development, adults develop dialectical reasoning. Individuals who think dialectically recognize that moral principles are important, but the specifics can vary, depending on the context. As a result, they scrutinize the situation closely and creatively find ways to make a decision that suits their particular circumstances. Another perspective, which draws from a modern interpretation of Aristotelian philosophy, agrees with this focus on the context. Scholars from this school of

thought focus on *phronesis* – practical wisdom – which emphasizes focusing on real-world situations as opposed to idealized principles (Kekes, 1995; Schwartz & Sharpe, 2006).

Defining Wise Reasoning

In characterizing wisdom, both Eriksonian and Neo-Piagetian schools of thought describe processes such as transcending one's present perspective (to think about past or alternate viewpoints), addressing uncertainties in life, and seeking balance between different goals. Building on these early descriptions, psychologists have recently defined wisdom as a pragmatic set of reasoning strategies that helps people manage social dilemmas² (wise reasoning from here; for reviews, see Baltes & Smith, 2008; Grossmann, 2017; Staudinger & Glück, 2011). These forms of reasoning include (a) understanding the limits of one's knowledge, (b) acknowledging that the world is uncertain and changing, (c) recognizing multiple perspectives and a broader context, and (d) searching for compromise and the integration of different ideas (Grossmann, 2017). Although this definition of wise reasoning largely draws from intellectual traditions in Western Europe and North America, similar themes have also been found in Hinduism, Confucianism, Taoism, and Buddhism (Grossmann & Kung, in press). Notably, wise reasoning does not provide the actual solution for the problem, nor does it describe what a successful outcome should look like. Rather, it provides tools that allow people to pragmatically approach the situation (Santos et al., 2017).

Wise reasoning is related to a number of positive traits, such as greater agreeableness and openness (Brienza, Kung, Santos, Bobocel, & Grossmann, 2017; Kunzmann & Baltes, 2003; Levenson, Jennings, Aldwin, & Shirashi, 2005; Mickler & Staudinger, 2008; Wink &

² Other definitions include constructs like expert knowledge, emotional control, self-insight, and prosociality (Bangen et al., 2013; Staudinger & Glück, 2011; Sternberg, 1998; Walsh, 2015). By focusing on wise reasoning, I pay close attention to how people make sense of the situations or problems that they are facing.

Staudinger, 2016)³. It is also associated with less depressive rumination (Brienza et al., 2017). Looking at interpersonal outcomes, wise reasoning also promotes greater cooperation and the endorsement of conflict resolution behaviors like forgiveness (Brienza et al., 2017; Grossmann, Brienza, & Bobocel, 2017). Concerning discriminant validity, wise reasoning has a unique network of relationships with outcomes and dispositional traits that is not fully covered by other personality constructs. For instance, wise reasoning – but not intelligence – is associated with markers of well-being such as life satisfaction, subjective relationship quality, and longevity (Grossmann, Na, Varnum, Kitayama, & Nisbett, 2013; for a broader discussion of such relationships, see Brienza et al., 2017).

Developmental Theories about Advice Giving and Wisdom

Looking across the lifespan, developmental psychologists from the Eriksonian tradition have proposed that guiding the next generation through behavior like advice giving leads to wisdom. According to Erikson's (1950) stages of psychosocial development, middle-aged adults face the conflict of stagnation vs. generativity (McAdams, de St. Aubin, & Logan, 1993; McAdams & de St. Aubin, 1992; McAdams, 2006). In other words, this conflict involves deciding whether to focus on self-indulgence or on guiding the next generation. Successfully addressing this conflict by becoming more generative precedes the development of wisdom in older age (Erikson et al., 1987). Although generativity often involves parenting, it can also refer to teaching and mentoring others (McAdams & de St. Aubin, 1992; Slater, 2003). Taken together, Erikson's model of human development suggests that advising others can lead to greater wisdom.

³ The latter four references did not use measures of wise reasoning *per se*, but instead used dispositional measures of wisdom that followed similar conceptual definitions.

A large body of research has examined the theory, phenomenology, and correlates of generativity, and much of this work suggests that generativity leads to wisdom (e.g., Cheng, 2009; Grossbaum & Bates, 2002; Hofer, Busch, Chasiotis, Kärtner, & Campos, 2008; McAdams & de St. Aubin, 1992; B. E. Peterson & Stewart, 1996). For instance, a common narrative for generative Americans involves a redemptive arc, where people face conflicts between agentic and communal goals, but in the end, stick to their moral values and promote future growth in the next generation (McAdams, 2006). This kind of story allows people to reflect on how they have balanced different concerns in life and take stock of how they have changed and grown over time. In support of this account, a few studies found a positive association between self-reported measures of generativity and psychological well-being, which includes wisdom-related items on personal growth (An & Cooney, 2006; Keyes & Ryff, 1998; Rothrauff & Cooney, 2008). However, these studies only looked at cross-sectional correlations between generativity and wisdom-related characteristics. They did not examine whether generativity led to greater wisdom over time (through either longitudinal analysis or experimental manipulation). As such, the causal relationship between advice giving and wisdom is still an open question.

A Socio-cognitive Account of Advice Giving and Wisdom

According to Erikson's theory of development, wisdom is a quality that is largely achieved at the end of life, in part, through advice giving. Looking more closely at what happens when people give advice, research from social and cognitive psychology suggests that the act of advice giving can facilitate mental processes associated with wisdom. These studies suggest that independent of one's stage in life, people can become wiser in a given situation by giving advice to someone else.

One explanation for the potential effect of advice giving on wise reasoning is that advisors are more likely than personal decision-makers to consider another person's mental processes, including their feelings, needs, and goals (mentalizing from here; Epley & Waytz, 2010; Fonagy, Bateman, & Bateman, 2011; Liljenfors & Lundh, 2015). Compared to reflecting about a problem alone, advising involves interacting with another person, the recipient. In particular, advisors try to consider what the recipient is going through and what kind of solution they might want (Kray, 2000). Considering other people's mental processes is a key component of wise reasoning (Grossmann, 2017), so people might reason more wisely when in the presence of other people. In support of this idea, Staudinger and Baltes (1996) found that people reasoned more wisely about a dilemma when they were prompted to consider what another person would think about their response. In addition, Grossmann, Gerlach, and Denissen (2016) found in a daily diary study that people reported greater intellectual humility and reduced focus on the self when they were with other people (vs. being alone). In sum, giving advice could involve mentalization processes that facilitate wiser reasoning.

Aside from thinking about other people, advisors are called to think about someone else's problem, which means that advisors (vs. personal decision-makers) are more psychologically distant from the problem (Danziger, Montal, & Barkan, 2012). As a result, advisors tend to think about problem more abstractly – that is, they focus on the central features of the problem and ignore specific, idiosyncratic information (Trope & Liberman, 2010). In support of this idea, Jungermann & Fischer (2005) observe that advisors tend to know less about the specific details of the problem compared to the recipient. In addition, simply learning about another person's problem or figuring out how to solve it could facilitate abstract thought. Compared to learning based on one's personal experiences, learning from other people promotes more abstract thinking

(Kalkstein, Kleiman, Wakslak, Liberman, & Trope, 2016). Because wise reasoning involves paying attention to the broader context (Grossmann, 2017), the abstraction involved in advice giving could facilitate wiser reasoning among advisors.

Related research on explanation – which is involved in advice giving – also suggests that explaining a concept to someone else encourages abstract thinking (Lombrozo, 2006). By viewing an issue broadly, an explainer can then develop a parsimonious explanation that can apply to other similar cases (Blanchard, Vasilyeva, & Lombrozo, 2017). In addition, the act of explanation can induce intellectual humility, as it reduces one’s overconfidence in how well they know a given topic (Rozenblit & Keil, 2002). For instance, in a series of experiments, Fernbach, Rogers, Fox, & Sloman (2013), asked participants to explain political issues that they felt strongly about. Compared to people who merely enumerated the reasons they supported these policies, those who explained the nature of these issues rated themselves as less knowledgeable on the topic. They also adopted more moderate attitudes towards that particular policy, which shows balance – one of the key aims of wisdom (Baltes & Smith, 2008; Brienza et al., 2017; Sternberg, 1998). Advisors are likely to explain their recommendations to a recipient, and in turn, may become more abstract and intellectually humble thinkers.

Advice giving typically involves considering the mental processes of others, being psychologically distant from a problem, and explaining a concept to someone else – all factors that may reduce focus on one’s self (self-distancing; for a review, see Kross & Ayduk, 2011). Recent experimental work suggests that various methods of self-distancing can increase wise reasoning about a given social dilemma (Grossmann, 2017). For example, when undergraduate students thought about the difficult job market after graduation, they were able to reflect more wisely on their situation (e.g., by being intellectually humble and open to the possibility of

change) when they viewed the situation as a distant observer rather than through their own eyes (Kross & Grossmann, 2012). Similar manipulations that have facilitated wiser reasoning about social problems include thinking about the future self instead of the present self (Huynh, Yang, & Grossmann, 2016) and using third-person language (e.g., third-person pronouns he, she, his, or her) when referring to one's self (Grossmann & Kross, 2014). Overall, these studies suggest that self-distancing behaviors – like advice giving – can be a path to wiser reasoning.

Facilitating Wiser Reasoning through Advice Giving

The socio-cognitive account of the relationship between advice giving and wisdom dovetail with recent theorizing that suggests that wisdom is malleable and influenced by the situation (Santos et al., 2017). For instance, an individual's wise reasoning varies from day to day (Brienza et al., 2017; Glück et al., 2015; Grossmann et al., 2016). This variation is systematic, and one factor that influences wise reasoning is the self-relevance of a given situation. For instance, Grossmann and Kross (2014) found in three experiments that people tended to reason more wisely about conflicts that did not involve themselves personally. In these studies, participants were asked to imagine a hypothetical situation where their partner (self-relevant condition) or their friend's partner (other-relevant condition) was being unfaithful. Participants reasoned more wisely when thinking about a friend's conflict. In addition, people from cultures and social classes that put a greater emphasis on social contexts vs. the self are more likely to reason wisely about interpersonal conflicts (Brienza & Grossmann, 2017; Grossmann et al., 2012). These studies suggest that focusing on other people instead of the self increases wise reasoning.

Given the malleability of wise reasoning, I propose that advice giving can be another method to facilitate wiser reasoning. This idea brings together developmental theories about the

role of advice giving in the development of wisdom (e.g., Erikson et al., 1987; McAdams, 2006) with research on the socio-cognitive processes involved when giving advice (e.g., Danziger et al., 2012; Kross & Grossmann, 2012; Lombrozo, 2006; Staudinger & Baltes, 1996). I aim to provide longitudinal and experimental evidence for the effect of advice giving on wisdom and increase the tools that people can use to increase wise reasoning in everyday life. In addition, I aim to contrast advice giving against two related processes: mentalization and psychological distance. Prior literature suggests that these two processes play a role in advice giving (Danziger et al., 2012; Kray, 2000), but I plan to test whether advice giving has unique effects on wise reasoning.

Overview of the Present Studies

In the present research, I investigated the effect of advice giving on the advisor's wise reasoning. In Study 1, I examined the cross-sectional and longitudinal relationship between advice-giving tendencies and wisdom-related characteristics in a national sample of U.S. Americans across 20 years. In Study 2, I looked at how people reason about specific situations and test whether recalling past dilemmas involving advice giving leads to wiser reasoning about that dilemma, compared to facing the dilemma alone, hearing advice being given to someone else, or receiving advice. In Study 3, I asked participants to read a standardized conflict and either give advice on it, imagine it is happening to a friend (without giving advice), or imagine that they are facing it personally. Finally, in Study 4, I tested whether advice giving (vs. facing a personal dilemma) in one situation led to wiser reasoning about a separate, unrelated conflict. Across these four studies, I examined the effects of advice giving in everyday life and in controlled, experimental settings. I also explored some potential mechanisms that could explain how advice giving contributes to wiser reasoning.

I performed all analyses using the *R* language for statistical computing (R Core Team, 2018). Reproducible code and data for all studies and preregistrations for Studies 2, 3, and 4 are available at <https://osf.io/8qnqg/>.

CHAPTER 2: ADVICE-GIVING TENDENCIES AND WISDOM-RELATED ATTITUDES ACROSS TWENTY YEARS OF LONGITUDINAL DATA

Study 1

I first examined whether advice giving would affect wisdom-related characteristics throughout the life course. To this end, I analyzed data from a national, longitudinal study of U.S. Americans with three waves collected across twenty years. As this study did not include explicit, state-based measures of wise reasoning, I examined pragmatic attitudes to life matters that include the acknowledgement of intellectual humility in one's viewpoints, recognition of the varied contexts of life and how they change over time, and open-mindedness toward different viewpoints on a challenging issue. These attitudes map onto some common definitions of wisdom (Bangen, Meeks, & Jeste, 2013; Grossmann, 2017; Staudinger & Glück, 2011). First looking at cross-sectional relationships, I predicted that people who tend to give advice will also report greater wisdom-related attitudes. In addition, I predicted that advice giving will predict greater wisdom-related attitudes over time.

Method

Participants. I analyzed data from a set of longitudinal studies of health and well-being – Midlife in the United States (MIDUS; Brim et al., 1999; Ryff et al., 2007, 2015). This study surveyed 7,108 participants at three time points: Time 1 (1995-1996), Time 2 (2005-2006), and Time 3 (2013-2014). Of these participants, 3,294 completed the measures at all three time points. After excluding participants who did not respond to any of the advice-giving and wisdom-related items, the final sample was 3,243. Table 1 shows the demographic information for the included participants.

Table 1. Demographic Information for Studies 1-4.

	Study 1	Study 2	Study 3	Study 4
Mean age	45.69	37.95	37.38	38.80
Sex (%)				
Male	44.60	30.20	34.90	36.20
Female	55.00	69.20	64.90	63.60
Other/Did not respond	0.40	0.60	0.20	0.20
Ethnicity (%)				
African American/Canadian	3.40	7.50	9.10	9.40
Asian American/Canadian	0.50	3.90	4.10	4.50
European American/Canadian	93.70	80.20	76.70	75.60
Latino American/Canadian	--	5.00	5.50	5.60
Native/Aboriginal	0.40	0.00	0.70	0.50
Other	0.20	3.40	3.80	4.50
Educational attainment (%)				
Less than high school	5.20	0.20	0.50	0.20
High school diploma or GED	30.40	7.00	7.20	8.90
Some college / vocational degree	24.90	35.00	41.20	36.10
4-year college degree	25.50	40.40	37.80	40.30
Graduate or professional degree	14.00	17.40	13.30	14.50
Median household income	\$50,001- 75,000	\$50,001- 75,000	\$35,001- 50,000	\$50,001- 75,000
Sample size	3,243	536	416	630

Note: Study 1 did not have any categories for Latino American participants. In Study 2, participants were asked to indicate gender instead of sex.

Measures. All items were drawn from the MIDUS surveys (Brim et al., 1999; Ryff et al., 2007, 2015).

Advice-giving tendencies (Advice Giving). The surveys included 3 questions tapping into the tendency people give advice to others: a) “You like to teach things to people;” b) “Many people come to you for advice;” and c) “How often do any friends, relatives, or coworkers turn to you for advice or help with a personal or practical problem they have?” The first two items were scored on a four point scale (from 1 = Not at all to 4 = A lot), and the third item was scored

on a six point scale (from 1 = Never to 6 = More than a couple of times a week). The three variables were correlated to each other at each wave ($r_s = .23 - .48$)⁴.

Wisdom-related attitudes (Wise Attitudes). The surveys included three questions tapping into wisdom-related attitudes about life experiences: a) “I think it is important to have new experiences that challenge how I think about myself and the world” [intellectual humility]; b) “Life has been a continuous process of learning, changing, and growth” [recognition of world in flux/change] (1 = Strongly disagree to 7 = Strongly agree); c) “In a bad situation it helps to find a different way of looking at things” [recognition of multiple perspectives] (1 = Not at all to 4 = A lot). The three variables were correlated to each other at each wave ($r_s = .21 - .55$).

Analytic Procedure. I constructed structural equation models (SEM) using the *lavaan* package in *R* (Rosseel, 2017). Specifically, I set up a cross-lagged panel model, which explores the relationship between two constructs and how they affect each other over time by examining the cross-lagged path (e.g., the effect of X_{Time1} on Y_{Time2} ; for a review, see Selig & Little, 2012). The cross-lagged panel model controls for stability over time by including the autoregressive path, which is the effect of the construct on itself at the next time point (e.g., the effect of Y_{Time1} on Y_{Time2}). Notably, the autoregressive path represents rank-order stability, where a positive autoregressive effect for a given construct means that an individual’s rank in the sample will remain the same over time. As a result, the cross-lagged path represents the effect of X_{Time1} on Y_{Time2} over and above the effect of Y_{Time1} . In addition, this model rules out the possibility that the correlation between X_{Time1} and Y_{Time1} explained any of the cross-lagged paths to Time 2.

⁴ As alphas are affected by very low number of items (Cortina, 1993), I reported inter-item correlations here as there were only three items for each construct.

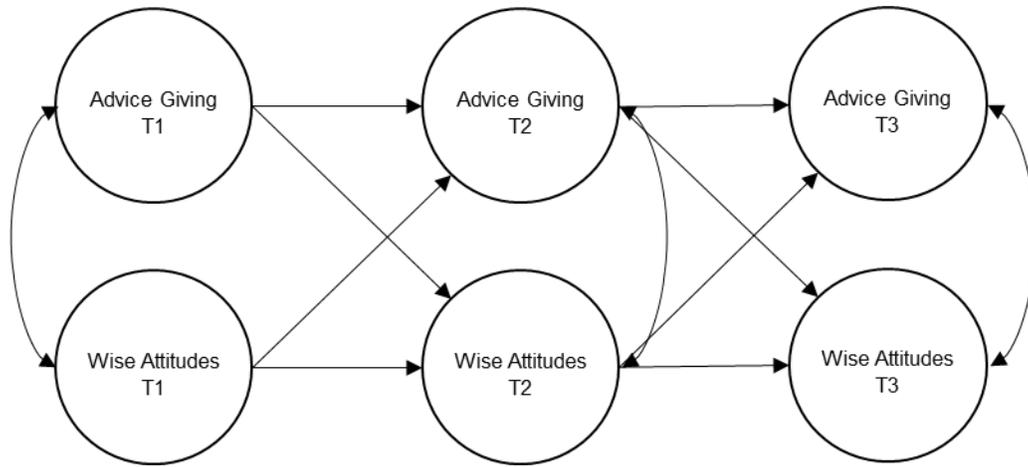


Figure 1. Path diagrams for the cross-lagged panel. Circles represent latent variables. The straight arrows represent regression paths and the curved arrows represent correlations between the residuals of the latent variables.

Figure 1 shows the cross-lagged panel model without the indicator variables and error terms. At each time point, I set advice giving and wise attitudes as latent variables consisting of three items each. To control for the stability of the variables over time, I allowed Time 1 latent variables to predict their Time 2 counterparts, and Time 2 variables to predict their Time 3 counterparts. In addition, I allowed the latent variables to co-vary at each time point to examine the cross-sectional correlation between advice-giving tendencies and wisdom-related attitudes. Finally, I allowed the error term of each variable to co-vary with its counterpart in different time points to account for the measurement of the same item across different years⁵.

Following recommendations by Enders and Bandalos (2001), I used full information maximum likelihood (FIML) estimation to deal with missing data. To evaluate both models, I

⁵ It is possible that the cross-lagged panel model does not capture a stable trait-like component underlying the constructs over time (Hamaker, Kuiper, & Grasman, 2015; Hertzog & Nesselroade, 2012). I tested for this possibility by adding autoregressive and cross-lagged paths from the Time 1 to the Time 3 latent variables. If T1 variables had a significant effect on T3 variables over and above the effects of T2 variables, then there might be a stable component to consider. The cross-lagged paths had negligible effects, which suggests that an effect between stable components of the constructs is unlikely, Wise Attitudes → Advice Giving: $B = -0.01, SE = 0.08, p = .73$; Advice Giving → Wise Attitudes: $B = 0.14, SE = 0.08, p = .06$.

followed established guidelines for good model fit: RMSEA < .08, PCLOSE > .05, and CFI > .95 (Meyers, Gamst, & Guarino, 2006).

Results

This model had good fit, RMSEA = .029, PCLOSE > .999, CFI = .980. In addition, the advice-giving items and the wisdom-related items loaded onto their respective latent constructs⁶ (see Table 2).

Table 2. Factor Loadings for Latent Variables

Indicator Item	Time 1		Time 2		Time 3	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Advice-giving Tendencies						
Teaching to others	--	.61	--	.60	--	.63
Many come to you for advice	1.31 (0.06)	.77	1.31 (0.06)	.77	1.19 (0.05)	.75
Friends/relatives asked for advice	1.33 (0.07)	.48	1.27 (0.07)	.47	1.07 (0.06)	.46
Wisdom-related Attitudes						
Intellectual humility	--	.71	--	.50	--	.52
World in flux and change	1.05 (0.04)	.76	1.06 (0.06)	.58	1.03 (0.06)	.61
Diff. perspectives	0.44 (0.02)	.45	0.50 (0.03)	.45	0.49 (0.03)	.45

Note: *B (SE)* – unstandardized factor loadings and standard errors; β – standardized factor loadings. T1 – Time 1; T2 – Time 2; T3 – Time 3.

First, I examined the cross-sectional relationships between advice giving and wise attitudes. I found that participants reporting a greater tendency to give advice also reported wiser attitudes at each time point, $r_{\text{time1}} = .46$, $r_{\text{time2}} = .33$, $r_{\text{time3}} = .37$. Next, I tested whether these coefficients were significantly different from each other. I did this by constraining the covariation paths between advice giving and wise attitudes to be equal across the three time points. Adding this constraint significantly worsened the model (compared to the unconstrained

⁶ The item “In a bad situation it helps to find a different way of looking at things” (Diff. perspectives) had relatively lower loadings compared to other wise reasoning items. In addition, the item “You like to teach things to people” (Teaching to others) was different from the other two advice-giving items, which involved being asked for advice. I still found the same pattern of results for the cross-lagged panel and trait stability models without these items (see supplementary analyses in Appendix A).

model), $\Delta\chi^2(2) = 121.79, p < .001$, which suggests that correlation between advice giving and wise attitudes changes over time. Overall, these findings support my prediction that advice giving and wise attitudes are positively associated with each other.

To examine the causal relationship between advice giving and wise attitudes, I examined the cross-lagged paths between the two constructs. These paths represent the change (in rank relative to other individuals in the sample) in construct Y as predicted by construct X at an earlier time point, controlling for the effect of construct Y at an earlier time point. As shown in Figure 2, advice giving predicted wiser attitudes across both time points. I tested whether I could estimate an overall effect by constraining the cross-lagged paths to be equal, and this constraint did not affect the model, $\Delta\chi^2(1) = 2.75, p = .097$. I then estimated the overall effect by looking at this constrained model, $B = 0.22, SE = 0.03, z = 7.30, 95\% \text{ CI } [0.16, 0.28], p < .001$. Looking at the other direction, wise attitudes at Time 2 predicted advice giving at Time 3 (see Figure 2). There was no significant effect of wise attitudes at Time 1 on advice giving at Time 2.

In summary, the cross-lagged panel model showed that, advice giving was positively associated with wise attitudes. In addition, greater advice giving predicted wiser attitudes over the course of 20 years. There is some evidence that wise attitudes can lead to greater advice giving; however, this was only from Time 2 to Time 3.

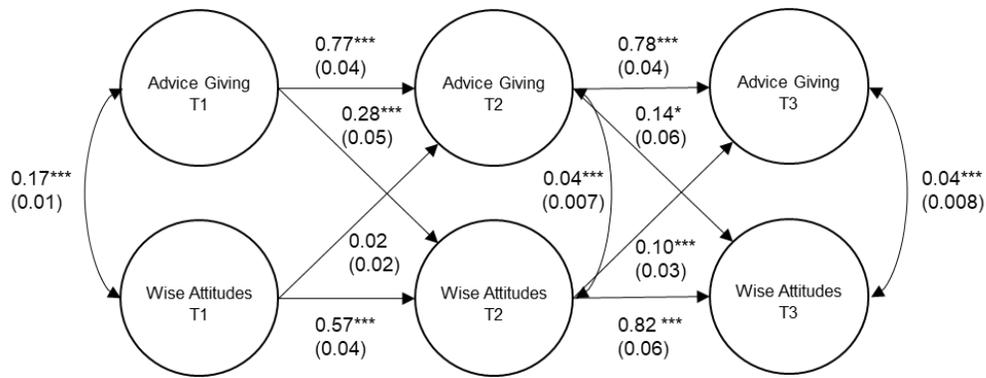


Figure 2. Cross-lagged panel model of advice-giving tendencies and wisdom-related attitudes across three time points (T1, T2, and T3). Circles represent latent variables. Unstandardized estimates and significant errors are shown. The straight arrows represent regression paths and the curved arrows represent correlations between the residuals of the latent variables. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

The longitudinal analysis reported here supports philosophical and psychological accounts that link advice giving and wise attitudes (e.g., Kramer, 1983; Maxwell, 1984; McAdams, 2006; Tiberius, 2008; Tiwald, 2012). Looking within each wave, advice giving and wise attitudes are positively associated with each other. Looking across time points, the cross-lagged panel model supports my hypothesis that advice giving leads to wiser reasoning later in life. I found a less consistent pattern for the opposite direction, with wise attitudes predicting advice giving only from Time 2 to Time 3. This discrepancy may be due to history effects. One possibility is that this transition happened between 2005 and 2014, which included the Great Recession in the United States. Perhaps wisely navigating through this uncertain time encouraged more generative behaviors like advice giving in later years (McAdams, 2006).

One limitation of this study is that assessments were done every 10 years. As a result, this data cannot capture more short-term effects of advice giving on wise reasoning. Further, findings from daily diary research suggests that wisdom can fluctuate from day to day (Grossmann et al.,

2016). To directly test the effect of advice giving on wise reasoning, I experimentally manipulated advice giving in studies 2, 3 and 4.

CHAPTER 3: WISE REASONING IN RECALLED ADVICE-GIVING SITUATIONS

Study 2

The main purpose of Study 2 was to examine whether recalled situations where people gave advice (advice condition) involved a greater degree of wise reasoning compared to situations where people faced a problem alone (personal dilemma condition). I also wanted to explore the possibility that being in an interaction that involved advice – without actually giving it – might already lead to wiser reasoning. Any situation that involves advice requires mentalizing, which could contribute to wise reasoning processes like the recognition of others' perspectives (Epley & Waytz, 2010). Prior research has shown that being in a social (vs. non-social) situation or thinking about what another person thinks of an issue, is associated to wiser reasoning (Grossmann et al., 2016; Staudinger & Baltes, 1996).

To address this possibility, I included two more control conditions, where participants did not give advice, but rather heard advice being given. One condition had people recall events where they heard advice being given to others (non-personal condition). In addition, I found in an unpublished study that participants reported wiser reasoning when recalling situations in which they gave ($n = 314$, $M = 3.50$, $SE = 0.04$) rather than received advice ($n = 319$, $M = 3.34$, $SE = 0.04$) about social dilemmas, $F(1, 607) = 7.84$, $p = .005$, $\eta_p^2 = .013$ (Santos, Grossmann, & Friedman, 2014). I thus included a fourth condition, where people recalled times when they received advice (advice receiving condition). This condition aimed to replicate this preliminary finding under more standardized conditions void of other variables and manipulations that may have influenced prior results⁷. In both conditions, participants interacted with other people to address a social dilemma without giving advice themselves. As I expected giving advice to be a

⁷ The preliminary finding came from a large, unrelated study on humor and reasoning, which included manipulations of mood and the quality of advice recalled, as well as multiple other state and trait measures.

unique process, I predicted that advice giving would lead to wiser reasoning compared to the personal dilemma, non-personal advice, and advice receiving conditions (see <https://osf.io/8qnqg/> for preregistered hypothesis and analysis plan).

Method

Participants. I recruited U.S. American and Canadian adults using the online labour market Amazon Mechanical Turk (MTurk). Participants were paid 0.75 USD. I aimed to have 150 participants per cell. As there were no prior studies that could be used for power analysis, I chose a level of power (.80) and correlation ($r = .23$, which is slightly above the average correlation of .21 in social and personality psychology research; Richard, Bond, & Stokes-Zoota, 2003). According to the G*Power statistical program, the recommended sample size with these parameters was 146. I rounded up that figure to 150 and recruited 1.15 times that number (175 per cell) to account for online attrition that I observed in past studies that I have conducted on MTurk. Initially, 725 participants completed the survey⁸. I excluded 14 participants for failing an attention check item that asked them to respond “not at all.”

Two trained raters also identified participants who wrote about events that did not involve advice or did not follow the prompt (e.g., writing about times they received advice when asked to describe problems they faced alone). Due to time constraints, I chose to have the raters each code a subset of the data (Hallgren, 2012). First, I trained two raters on a set of 54 responses that the three of us coded together. Afterwards, raters coded 54 responses individually (both coding the same set of responses). When coding individually, raters showed a high amount of agreement (Cohen’s kappa = .74), and I made a decision on any remaining discrepancies in this

⁸ I only paid 700 participants. An additional 25 participants completed the survey but did not claim their payment from MTurk. As the participants’ responses are anonymized and stored separately from MTurk, I could not track down who these participants were. If any of these participants gave low-quality responses, they were most likely excluded from the study, given my exclusion criteria.

set. After this training period, each rater coded half of the remaining responses. Based on this coding, I excluded 172 participants.

Finally, I excluded 3 participants who spent under 30 seconds writing about the social dilemma, as it suggests that they did not spend much time thinking about that situation. After exclusions, the final sample was 536. There was no significant difference in the number of excluded participants by condition (between 40 and 55), $F(3,721) = 1.97, p = .12, \eta_p^2 = .008$. Table 1 shows the demographic information for the included participants.

Experimental procedure. I randomly assigned participants to one of four conditions. They were asked to recall a concrete event where they either (a) gave advice, (b) worked through a personal dilemma by themselves, (c) heard advice someone else received, or (d) received advice. The prompt for participants defined social dilemmas as “difficult problems where we have to think about what to do next or how to handle a certain situation. For example, one such dilemma is figuring out how to tell a friend that he is making some bad decisions without ruining the friendship.”

In the *advice giving* condition ($n = 152$), participants read the following prompt:

When someone is dealing with a social dilemma and talks to us about it, we sometimes give that person advice. Advice could range from a short statement to a detailed recommendation. What is important is that you gave someone guidance on what to do about a problem.

Now think about a recent time when you **gave someone advice** about a **social dilemma**.

In the *personal dilemma* condition ($n = 121$), participants read the following prompt:

When we are dealing with a social dilemma, we sometimes choose to manage it by ourselves. That means that we avoid discussing it with other people or asking their opinion. What is important is that you managed this problem by yourself, without seeking guidance from others.

Now think about a recent time when you went through a **social dilemma** and **managed it by yourself.**

In the *non-personal advice* condition ($n = 124$), participants read the following prompt:

When someone is dealing with a social dilemma, they sometimes receive advice about it from someone else. Advice could range from a short statement to a detailed recommendation. What is important is that you were **not** the one who gave this person advice about a problem.

Now think about a recent time when you **heard the advice someone received** about a **social dilemma.**

In the *advice receiving* condition ($n = 139$), participants read the following prompt:

When we are dealing with a social dilemma and talk to other people about it, we sometimes receive advice. Advice could range from a short statement to a detailed recommendation. What is important is that someone gave you guidance on what to do about a problem.

Now think about a recent time when you **received advice** about a **social dilemma.**

Participants then described what the situation was and then, depending on the condition, described the advice they gave/received/heard or their thoughts about the situation. Afterwards they all filled out a measure of wise reasoning.

Wise reasoning measure. Drawing from prior research on wise reasoning, I used a 21-item scale to assess the extent to which people engage in various aspects of wise reasoning when reflecting on the advice situation (Situating Wise Reasoning Scale; Brienza et al., 2017). This measure had five subscales measuring different dimensions of wise reasoning: a) the recognition of others' perspectives (4 items; $\alpha = .89$), b) the recognition of change and uncertainty (4 items; $\alpha = .78$), c) intellectual humility (4 items; $\alpha = .82$), d) the search for compromise and conflict resolution (5 items; $\alpha = .85$), and e) the application of an outsider's vantage point (4 items; $\alpha = .86$). Participants rated the degree to which they engaged in each aspect of wise reasoning on a 5-point scale (1 = Not at all to 5 = Very much) and the overall scale was reliable, ($\alpha = .93$). I averaged the items for each dimension and averaged the five dimensions to compute an overall wise reasoning score, which gave equal weights to each dimension.

The Situating Wise Reasoning Scale has been validated in prior work (Brienza et al., 2017). Specifically, the five subscales described above converge into one latent wise reasoning construct. In addition, the measure shows convergent validity with other theorized constructs, while still being distinct from other established scales, such as those measuring openness, mindfulness, and emotional intelligence. In addition, this measure is not associated with measures of socially desirable responding and bias blind spot, which suggest that participants are not likely to report wiser reasoning to present a positive self-characterization.

Results

To test my chief hypothesis, I conducted planned contrasts between the advice giving condition and other conditions. Next, I conducted post-hoc tests to examine any other differences between conditions.

Wise Reasoning Composite. Testing for homogeneity of variance assumption yielded a marginal effect, $F(3, 532) = 2.46, p = .062$. To be conservative, I conducted my analyses as if the assumption was violated and used Welch's F and Games-Howell post-hoc tests. A planned contrast analysis showed that participants who gave advice reasoned more wisely compared to participants from other conditions, although this effect was only marginally significant, $F(1, 306.62) = 3.50, p = .062, \eta_p^2 = .006$ (see Figure 3). Looking at post-hoc Games-Howell contrasts between each condition, participants who either gave or received advice reasoned more wisely than those who faced a personal dilemma, advice giving vs. personal dilemma: $t(230.65) = 3.11, p = .011$, advice receiving vs. personal dilemma: $t(242.69) = 3.19, p = .009$. There were no other differences between conditions. These findings held when statistically controlling for how much time passed since the recalled event occurred (see supplementary analyses in Appendix C).

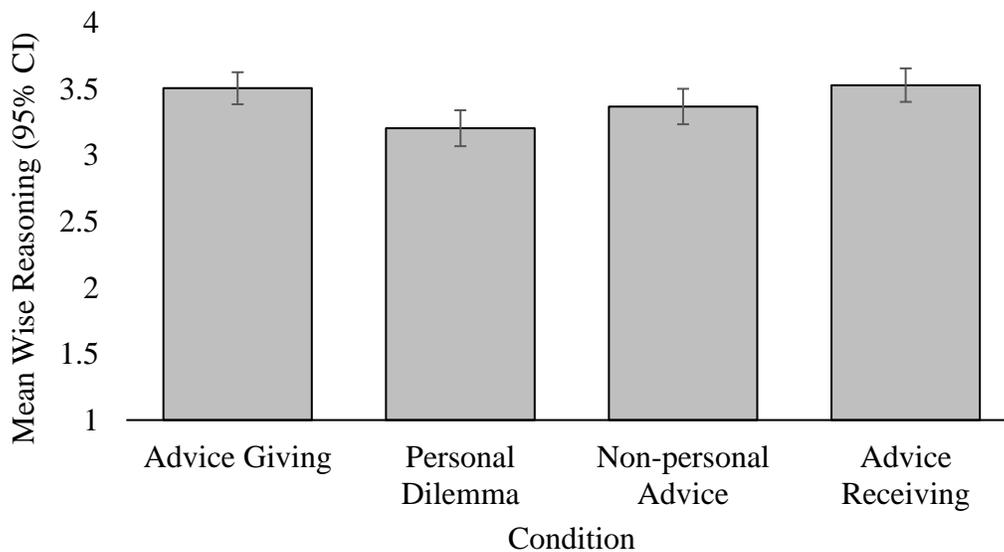


Figure 3. Bar chart of the effect of advice condition on the wise reasoning composite score.

Individual wisdom dimensions. A planned contrast analysis showed that compared to participants in other conditions, those in the advice giving condition scored significantly higher

on recognition of others' perspectives, $F(1, 296.71) = 12.03, p < .001, \eta_p^2 = .021$, and the search for compromise/conflict resolution dimensions, $F(1, 304.06) = 4.97, p = .026, \eta_p^2 = .008$ (see Table 3). Looking at the post-hoc contrasts between each condition, advice giving led to greater recognition of other's perspectives, $t(225.29) = 3.98, p = .001$. In addition, advice giving and advice receiving led to greater application of an outsider's vantage point compared to facing personal dilemma, advice giving vs. personal dilemma: $t(233.56) = 2.81, p = .028$, advice receiving vs. personal dilemma: $t(240.55) = 2.18, p = .004$. The planned contrast between advice giving and the other conditions was not significant for the outsider dimension, $F(1, 302.77) = 1.97, p = .161$. Although this finding seems at odds with the significant post-hoc contrast between the advice giving and personal dilemma conditions, there was also no significant difference in the post-hoc contrast between giving and receiving advice, $t(283.86) = 0.86, p < .275$.

Comparing the advice giving condition to the other conditions, there were no significant differences in the recognition of change/uncertainty, $F(1, 288.75) = 1.17, p < .275, \eta_p^2 = .002$, and intellectual humility, $F(1, 283.72) = 0.52, p < .275$. Notably, post-hoc tests revealed that participants who received advice reported greater intellectual humility compared to those who gave advice, $t(288.08) = 2.75, p = .032$, or faced a personal dilemma, $t(241.53) = 4.01, p < .001$ (see Table 3). There were no other significant contrasts.

Table 3. Means and Confidence Intervals for the Effect of Condition on Wise Reasoning Dimensions

	Perspectives	Change	Humility	Compromise	Outsider
Advice Giving	3.75 [3.60, 3.90]	3.71 [3.08, 3.58]	3.08 [2.92, 3.23]	3.62 [3.48, 3.77]	3.36 [3.19, 3.53]
Personal Dilemma	3.24	3.57	2.88	3.35	2.98

	[3.07, 3.41]	[3.41, 3.71]	[2.70, 3.05]	[3.19, 3.52]	[2.79, 3.17]
Non-personal Advice	3.53	3.59	3.13	3.39	3.19
	[3.36, 3.70]	[3.13, 3.44]	[2.96, 3.31]	[3.23, 3.55]	[3.00, 3.38]
Advice Receiving	3.53	3.71	3.39	3.54	3.47
	[3.38, 3.69]	[3.57, 3.85]	[3.22, 3.56]	[3.39, 3.70]	[3.29, 3.64]

Note: Lower and upper 95% confidence intervals are presented within the brackets.

Discussion

In Study 2, I obtained experimental evidence for the effect of advice giving on wise reasoning. Participants who recalled situations where they gave advice reported wiser reasoning compared to those who recalled situations where they faced a personal dilemma. This effect was driven primarily by increased recognition of different perspectives, search for compromise and conflict resolution, and application of an outsider’s vantage point. These are all dimensions that involve looking for and integrating different points of view, which suggest that advice giving encourages people to understand the mental state of others.

Although participants in the advice giving condition generally reported wiser reasoning compared to all other conditions, I did not find a significant difference in the individual contrasts between the advice giving condition, non-personal advice, and advice receiving conditions, which suggests that this effect may not be unique to *giving* advice. Participants in these three conditions recalled social interactions, which may have encouraged thinking about others’ mental processes. I addressed these issues in Study 3 by standardizing the social dilemma.

One other notable finding was that people who received advice were more intellectually humble than those who gave advice or faced a dilemma alone. I did not predict these contrasts, but it makes sense in hindsight, because people often seek and receive advice from people more knowledgeable than them in a given domain (Jungermann & Fischer, 2005).

CHAPTER 4: THE EFFECT OF ADVICE GIVING ON WISE REASONING ABOUT STANDARDIZED DILEMMAS

Study 3

Study 3 was conducted concurrently with Study 2, and its main purpose was to examine whether advice giving had additional effects on wise reasoning over and above the effect of psychological distance (Grossmann & Kross, 2014; Kross & Grossmann, 2012). In Study 3, I kept the advice giving and personal dilemma conditions and added another condition where participants reflected on a friend's dilemma without asking them to give any advice. In addition, I standardized the social dilemma by having participants all react to the same hypothetical situation. This addressed the possibility raised in Study 2 that participants might have recalled different kinds of social dilemmas depending on the condition. I predicted that giving advice would involve wiser reasoning than imagining going through the dilemma or merely reflecting on a friend's dilemma (see <https://osf.io/8qngq/> for preregistered hypothesis and analysis plan).

Method

Participants. I recruited U.S. American and Canadian adults using the online labour market Amazon Mechanical Turk (MTurk). Participants were paid 0.75 USD. I conducted this study at the same time as Study 2, and people who completed Study 2 were not eligible for this study and vice-versa. As with Study 2, I aimed to have 150 participants per cell, and recruited 1.15 times that number (175 per cell) in order to account for online attrition on MTurk. Initially, 492 participants made it to the end of the survey. I excluded 8 participants for failing an attention check item, 34 participants for not following instructions in the friend condition as coded by trained raters (i.e., giving advice when instructed to reflect on a friend's dilemma is grounds for exclusion; Cohen's kappa = .84), 5 participants for spending less than 30 seconds writing about

the dilemma, and 20 participants for having previously done a study on wisdom and advice.

After exclusions, the final sample was 416. Table 1 shows the demographic information for the included participants.

Experimental procedure. Participants all read a newspaper advice column about a person in the middle of a social dilemma – the protagonist is in the middle of an argument between two friends, and he is forced to take sides (see Appendix D for materials). The dilemmas were adapted from “Dear Abby” letters, originally used by Grossmann and colleagues (2010). I randomly assigned participants to one of three conditions, which framed the dilemma in different ways: (a) giving advice to a friend, (b) hearing about a friend’s dilemma, or (c) experiencing a personal dilemma.

In the *advice giving* condition ($n = 160$), the protagonist was a close friend who was asking for advice on the matter. Participants saw the following prompt: “Please pick one of your close friends. Imagine that **your friend** is going through this conflict and **wrote this letter** to the newspaper. What advice would you give your friend about this conflict?”

In the *friend* condition ($n = 108$), the protagonist was a close friend, but there was no mention of advice seeking. Participants saw the following prompt: “Please pick one of your close friends. Imagine that **your friend** is going through this conflict and **wrote this letter** to the newspaper. What thoughts do you have about your friend's conflict?”

In the *personal dilemma* condition ($n = 148$), the participants imagine themselves as the protagonist. Participants saw the following prompt: “Imagine that **you** are going through this conflict and **wrote this letter** to the newspaper. What thoughts do you have about this conflict?”

Participants then wrote their responses to the question and filled out a measure of wise reasoning.

Wise reasoning measure. I used the same measure of wise reasoning that was reported in Study 2. Each of the subscales was reliable: a) the recognition of others' perspectives (4 items; $\alpha = .89$), b) the recognition of change and uncertainty (4 items; $\alpha = .76$), c) intellectual humility (4 items; $\alpha = .80$), d) the search for compromise and conflict resolution (5 items; $\alpha = .81$), and e) the application of an outsider's vantage point (4 items; $\alpha = .78$). The overall scale was also reliable ($\alpha = .92$), so I averaged the items for each dimension and averaged the five dimensions to compute an overall wise reasoning score.

Results

I tested a planned contrast between advice giving and all other conditions, which addresses the main hypothesis of Study 3. Next, I conducted a post-hoc test to examine any other differences between conditions.

Wise Reasoning Composite. This data met the assumption for homogeneity of variance, $F(2, 412) = 1.30, p > .275$. A planned contrast analysis showed that participants in the advice giving condition reported wiser reasoning compared to those from the other two conditions, $F(1, 413) = 3.99, p = .047, \eta_p^2 = .010$ (see Figure 4). Post-hoc Tukey contrasts between each condition did not reveal any significant differences. Overall, these results provide some support for my hypothesis that advice giving leads to wiser reasoning compared to reasoning about one's own or a friend's problem.

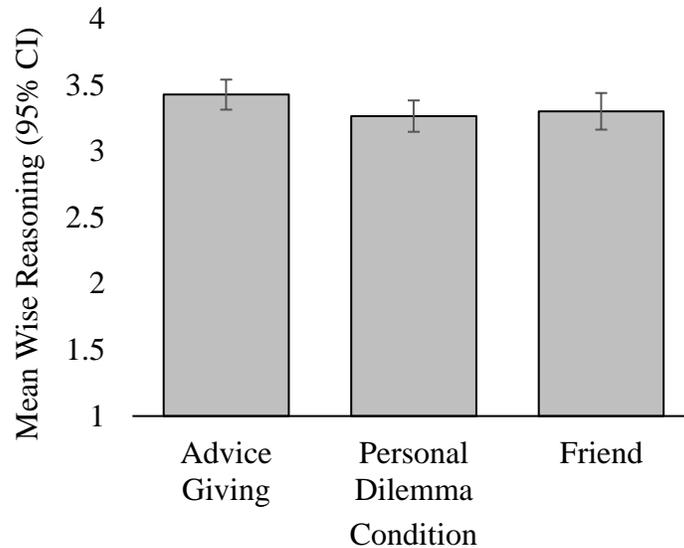


Figure 4. Bar chart of the effect of advice condition on the wise reasoning composite score.

Individual wisdom dimensions. Planned contrast analyses showed that compared to those from other conditions, participants in the advice giving condition scored significantly higher on the recognition of others' perspectives, $F(1, 413) = 4.12, p = .043, \eta_p^2 = .010$, recognition of change/uncertainty, $F(1, 413) = 7.86, p = .005, \eta_p^2 = .019$, and search for compromise/conflict resolution dimensions, $F(1, 413) = 9.37, p = .002, \eta_p^2 = .022$ (see Table 5). Looking at the post-hoc tests between each condition, advice giving led to higher ratings compared to the person dilemma condition on the change/uncertainty dimension, $t(307) = 2.88, p = .012$, and the compromise/resolution dimension, $t(307) = 3.22, p = .004$ (see Table 4). The planned contrast analyses did not show any significant differences for intellectual humility, $F(1, 413) = 0.16, p > .275, \eta_p^2 < .001$, and the application of an outsider's vantage point dimensions, $F(1, 413) = 0.01, p > .275, \eta_p^2 < .001$. None of the other contrasts yielded any significant results for these dimensions.

Table 4. Means and Confidence Intervals for the Effect of Condition on Wise Reasoning Dimensions

	Perspectives	Change	Humility	Compromise	Outsider
Advice Giving	3.62 [3.47, 3.77]	3.70 [3.57, 3.82]	3.00 [2.85, 3.16]	3.72 [3.58, 3.85]	3.10 [2.95, 3.25]
Personal Dilemma	3.40 [3.24, 3.55]	3.43 [3.30, 3.56]	2.96 [2.80, 3.12]	3.40 [3.27, 3.54]	3.13 [2.97, 3.29]
Friend	3.46 [3.28, 3.64]	3.52 [3.37, 3.67]	2.96 [2.77, 3.15]	3.52 [3.36, 3.68]	3.07 [2.85, 3.22]

Note: Lower and upper 95% confidence intervals are presented within the brackets.

Discussion

Study 3 provides further support for the effect of advice giving on wise reasoning. Participants who gave advice about a standardized scenario reasoned more wisely compared to those in other conditions. Specifically, participants who gave advice were more likely than those who reflected on a personal dilemma to recognize the perspectives of other people, change and uncertainty, and the importance of compromise and conflict resolution. Overall, the evidence shows that advice giving leads to increased reports of wise reasoning.

The individual contrasts revealed no significant difference between the advice giving and the friend conditions. There was also no difference between the friend and personal dilemma conditions, which suggests that psychological distance might play a role in advice giving, although the study may not have been well powered or designed in a way that distinguished between the three conditions. I will consider implications of this observation for possible mechanisms underlying effects of advice giving for wise reasoning in the general discussion.

CHAPTER 5: THE EFFECT OF ADVICE GIVING ON WISE REASONING ABOUT AN UNRELATED DILEMMA

Study 4

Study 4 had three objectives. The first objective was to replicate the effect of advice giving vs. self-reflection on wise reasoning. With this goal in mind, I kept the advice giving and self conditions in this study and largely followed the same procedures as in Study 3.

The second objective was to test the generalizability of the effect to an unrelated dilemma. While giving advice may help people reason more wisely in a given situation, people may continue using these adaptive strategies for other problems. To examine the possible priming effect of advice giving, after the completing the tasks described in Study 3, I presented participants with an unrelated dilemma and asked them to reflect on it, upon which participants indicated the extent to which they engaged in wise reasoning.

The third objective was to address some shortcomings in the Study 3 stimuli. To account for any idiosyncratic effects of the particular conflict participants read in Study 3, participants in the current study read about one of two dilemmas when asked to give advice or reflect on it by themselves. The dilemma that participants did not read eventually became the unrelated dilemma that they had to reason about later in the study. I also modified the dilemma vignette used in Study 3 to remove any demand characteristics.

In total, Study 4 examined two hypotheses (see <https://osf.io/8qnqg/> for preregistered hypotheses and analysis plan): (1) People who give advice about the dilemma (vs. address a personal dilemma) will report wiser reasoning compared to those who reflected on a problem by themselves. (2) People who give advice will reason more wisely about an unrelated dilemma.

Method

Participants. I recruited U.S. American and Canadian adults using the online labour market Amazon Mechanical Turk (MTurk). Participants were paid 1.00 USD. People who completed either Study 2 or 3 were not eligible for this study. I used G*Power to estimate a replication of the change/uncertainty finding (which was the weaker of the two findings in the previous study) with .80 power. This yielded a sample size of 134 per cell. Because participants read one of two stories, I planned to power a study with four cells (2 stories, 2 conditions), which yielded a sample size of 536. I multiplied this by 1.35 to account for the attrition rate from Study 3, yielding a final sample of 724. Seven hundred twenty-nine participants made it to the end of the survey. Using new self-report attention measures, 11 participants excluded themselves from the study (most said they did not want me to use their data; one reported being biased against Dear Abby writers), and I excluded 65 participants for reporting little engagement or seriousness while doing the study. In addition, I excluded 11 participants for spending less than 30 seconds writing about the dilemma, and 14 participants for having previously done a study on wisdom and advice. After exclusions, the final sample was 630. Table 1 shows the demographic information for the included participants.

Experimental procedure. Participants read about an *initial dilemma*, and were asked to either give advice to a friend experiencing this problem or imagine it happening to them personally. They wrote their thoughts about this dilemma and filled out a wise reasoning measure, where they reported how they thought about the initial conflict. Afterwards, participants in both conditions read about an *unrelated dilemma*, and imagined it happening to them personally. They wrote their thoughts about this unrelated dilemma and filled out a wise reasoning measure, where they reported how they thought about the problem.

For the initial dilemma, participants all read a newspaper advice column. One of two dilemmas was randomly selected for the participant: (1) the protagonist is in the middle of an argument between two friends, and he is forced to take sides; (2) the protagonist's sibling made a family purchase without informing the other siblings and now wants everyone to contribute money for it (see Appendix E for materials). The dilemmas were adapted from "Dear Abby" letters used by Grossmann and colleagues (2010). In contrast to Study 3, I removed a line from the dilemma used in that study that said "I don't know how to explain to her that as they are both my friends, I would rather be left out of their arguments and not have to choose sides," as it hinted at what kind of answer participants should give. I randomly assigned participants to one of two conditions, which framed the dilemma in different ways: (a) giving advice to a friend or (b) experiencing the dilemma by themselves.

In the *advice giving* condition ($n = 310$), the protagonist was a close friend who was asking for advice on the matter. Participants saw the following prompt: "Imagine that **your friend** is going through this conflict and **wrote this letter** to the newspaper. What advice would you give your friend about this conflict?" Compared to Study 3, I no longer asked participants to choose a close friend; this revision simplified the prompt and matched its structure to the prompt used in the other condition.

In the *personal dilemma* condition ($n = 318$), the participants imagine themselves as the protagonist. Participants saw the following prompt: "Imagine that **you** are going through this conflict and **wrote this letter** to the newspaper. What thoughts do you have about this conflict?"

Participants then wrote their responses to the question and filled out a measure of wise reasoning.

Next, for the unrelated dilemma, participants read the dilemma that they did not see in the first part of the study. I no longer framed the dilemma as a letter to a newspaper, and asked participants to imagine this conflict happening to them personally. After reading the about the dilemma, participants were asked, “How do you think this conflict will unfold?” They then wrote their responses to the question and filled out a measure of wise reasoning.

Wise reasoning measure. I used the same measure of wise reasoning after both the initial and unrelated dilemmas. Each of the subscales was reliable: a) the recognition of others’ perspectives (4 items; $\alpha_{initial} = .91$, $\alpha_{unrelated} = .93$), b) the recognition of change and uncertainty (4 items; $\alpha_{initial} = .86$, $\alpha_{unrelated} = .89$), c) intellectual humility (4 items; $\alpha_{initial} = .80$, $\alpha_{unrelated} = .86$), d) the search for compromise and conflict resolution (5 items; $\alpha_{initial} = .85$, $\alpha_{unrelated} = .88$), and e) the application of an outsider’s vantage point (4 items; $\alpha_{initial} = .87$, $\alpha_{unrelated} = .92$). The overall scale was also reliable ($\alpha_{initial} = .94$, $\alpha_{unrelated} = .95$), so I averaged the items for each dimension and averaged the five dimensions to compute an overall wise reasoning score.

Results

Initial Dilemma Wise Reasoning. This data met the assumption for homogeneity of variance, $F(1, 626) = 0.63$, $p > .275$. In support of Hypothesis 1, participants who gave advice reasoned more wisely about the initial dilemma ($M = 3.50$, $SE = .04$) compared to those who reflected by themselves ($M = 3.35$, $SE = .04$), $F(1, 626) = 5.98$, $p = .015$, $\eta_p^2 = .009$.

Looking at individual dimensions, participants in the advice giving condition reported a greater recognition of others’ perspectives, $F(1, 626) = 9.30$, $p = .002$, $\eta_p^2 = .015$, recognition of change/uncertainty, $F(1, 626) = 5.57$, $p = .019$, $\eta_p^2 = .009$, and the search for compromise/conflict resolution, $F(1, 626) = 5.75$, $p = .017$, $\eta_p^2 = .009$ (see Figure 5). There was no significant effect of condition on intellectual humility, $F(1, 626) = 0.61$, $p < .275$, $\eta_p^2 < .001$,

and the application of an outsider's vantage point, $F(1, 626) = 2.12, p = .145, \eta_p^2 = .003$. For overall wise reasoning and the individual dimensions, there was no significant interaction between condition and the type of dilemma participants read, $ps > .200$.

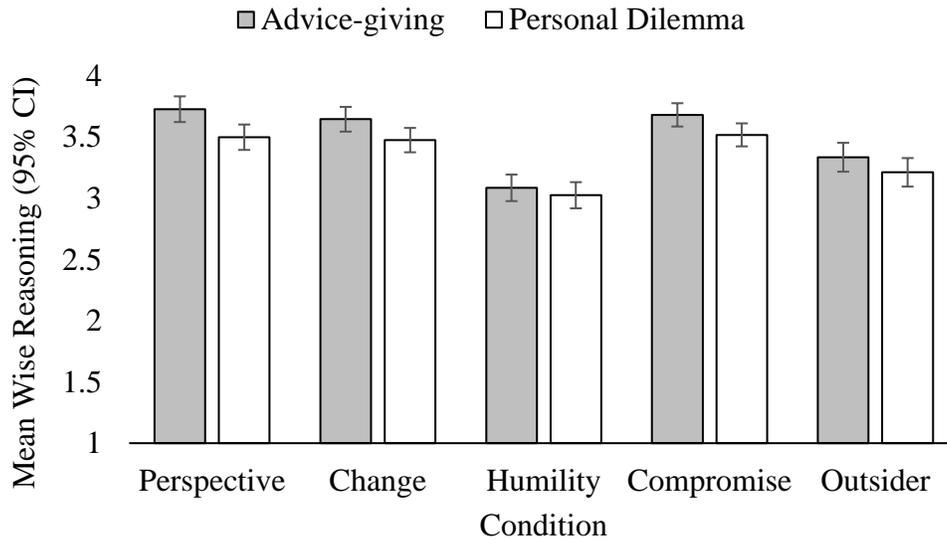


Figure 5. Bar chart of the effect of condition on the initial dilemma wise reasoning dimensions.

Unrelated Dilemma Wise Reasoning. This data met the assumption for homogeneity of variance, $F(1, 626) = 0.02, p > .275$. In support of Hypothesis 2, participants who gave advice reasoned more wisely about the unrelated dilemma ($M = 3.46, SE = .05$) compared to those who reflected by themselves ($M = 3.29, SE = .05$), $F(1, 626) = 6.00, p = .015, \eta_p^2 = .009$.

Looking at individual dimensions, participants in the advice giving condition reported greater intellectual humility, $F(1, 626) = 6.85, p = .009, \eta_p^2 = .011$, and application of an outsider's vantage point, $F(1, 626) = 6.88, p = .009, \eta_p^2 = .011$ (see Figure 6). Additionally participants in the advice giving condition reported marginally greater recognition of others' perspectives, $F(1, 625) = 3.59, p = .059, \eta_p^2 = .006$. There was no significant effect of condition on the recognition of change/uncertainty, $F(1, 625) = 2.50, p = .114, \eta_p^2 = .004$, and the search for compromise/conflict resolution, $F(1, 626) = 1.95, p = .162, \eta_p^2 = .003$. For overall wise

reasoning and the individual dimensions, there was no significant interaction between condition and the type of dilemma participants read, $ps > .250$.

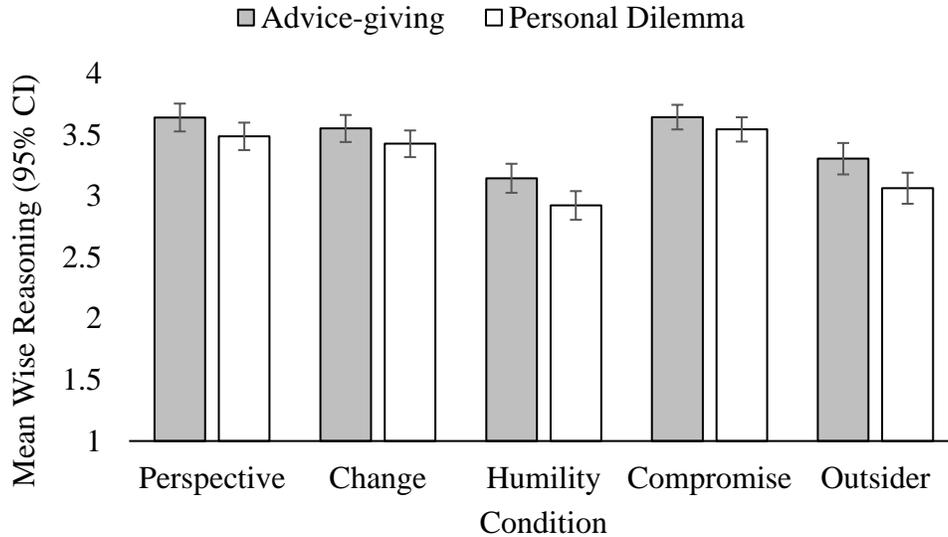


Figure 6. Bar chart of the effect of condition on the unrelated dilemma wise reasoning dimensions.

Statistical Mediation. I then tested whether the effect of advice giving on wise reasoning (and its individual dimensions) about the unrelated dilemma was mediated by how people reasoned about the initial dilemma. I found a full mediation for the wise reasoning composite, 95% CI [-0.208, -0.020], $p = .016$, the recognition of multiple perspectives, 95% CI [-0.211, -0.050], $p = .003$, and the recognition of change/uncertainty dimensions, 95% CI [-0.163, -0.010], $p = .022$. I also found a partial mediation for search for the compromise/conflict resolution dimension, 95% CI [-0.167, -0.020], $p = .015$. For all dimensions, advice giving led to greater dimension ratings for the initial dilemma, which led to greater dimension ratings for the unrelated dilemma (see Table 5). I did not find a significant mediation effect for intellectual humility, 95% CI [-0.156, 0.070], $p > .275$, or the application of an outsider’s perspective, 95% CI [-0.198, 0.020], $p = .136$. In summary, the effect of advice giving on wise reasoning in the subsequent dilemma is largely explained by how wisely people reasoned in the initial dilemma.

Table 5. Advice Giving → Initial Dilemma → Unrelated Dilemma Mediation Model

Wise Reasoning Dimension		Path A (Advice → Initial Dilemma)	Path B (Initial Dilemma → Unrelated Dilemma)	Path C (Advice → Unrelated Dilemma)
Overall Wise Reasoning	<i>B(SE)</i>	0.15(0.06)***	0.07(0.03)***	0.05(0.05)
	<i>p</i>	<.001	<.001	.313
Perspective	<i>B(SE)</i>	0.23(0.08)**	0.55(0.04)***	0.03(0.07)
	<i>p</i>	.002	<.001	.688
Change	<i>B(SE)</i>	0.16(0.07)*	0.52(0.03)***	0.03(0.07)
	<i>p</i>	.021	<.001	.640
Humility	<i>B(SE)</i>	0.06(0.07)	0.73(0.03)***	0.18(0.06)**
	<i>p</i>	.416	<.001	.006
Compromise	<i>B(SE)</i>	0.17(0.07)*	0.55(0.03)***	0.55(0.04)***
	<i>p</i>	.015	<.001	<.001
Outsider	<i>B(SE)</i>	0.12(0.09)	0.70(0.03)***	0.15(0.07)
	<i>p</i>	.142	<.001	.031

Note: Unstandardized regression estimates are shown. Path C presents the effect of condition on the unrelated dilemma controlling for the initial dilemma. * $p < .05$; ** $p < .01$; *** $p < .0001$.

Discussion

In Study 4, I tested two hypotheses looking at whether advice giving would lead to (1) wiser reasoning about an initial dilemma and (2) wiser reasoning about an unrelated dilemma. I found support for both hypotheses.

Replicating the findings of Study 3, advice giving in Study 4 led to wiser reasoning about a friend's dilemma compared to reflecting on a personal dilemma. As with the previous study, this effect was driven by a greater recognition of others' perspectives, of change and uncertainty in the world, and of the value of compromise and conflict resolution.

Further, these findings were not limited to the situation that involved advice giving. People in the advice giving condition also reasoned more wisely about an unrelated dilemma. In this separate scenario, there was no prompt to give advice. In addition, the psychological distance potentially involved in advice giving was removed, as they had to imagine that they were facing a dilemma personally. The effect of advice giving on wise reasoning was driven by

greater intellectual humility and application of an outsider's vantage point. These findings suggest that advice giving can prime wise reasoning in future conflicts.

Notably, advice giving affected different dimensions of wise reasoning in the initial and unrelated dilemmas. This discrepancy has two implications. First, it rules out the possibility that participants were influenced by demand characteristics and merely answered the wise reasoning measure in the same manner both times. While I did find a full mediation (from advice giving → initial dilemma → unrelated dilemma) for the perspectives and change/uncertainty dimensions, there was only a partial mediation for the compromise dimension. In addition, while there was no effect of advice giving on the outsider dimension in the initial dilemma, advisors later scored higher on this dimension when reflecting about the unrelated dilemma. These differences suggest that there was some variation in how participants answered the wise reasoning measures for the different dilemmas.

Second, the results for the initial and unrelated dilemmas suggest that advice giving might have influenced different dimensions of wise reasoning across situations. While thinking about the unrelated dilemma, participants in the advice giving condition did not simply reuse the strategies they utilized in the initial dilemma. Instead, they moved from dimensions of wise reasoning that focused on the context (i.e., considering perspectives, change/uncertainty, and change/compromise) to dimensions that focused on reducing ego-centrism (i.e., being intellectually humble, taking an outsider's vantage point). These post-hoc groupings could reflect how wise reasoning is expressed in different kinds of situations. One possibility is that the type of situation matters. With regards to the initial dilemma, advisors tend to think more abstractly and pay attention to a wider array of information compared to a personal decision-maker (with the eventual goal of narrowing down options; Danziger et al., 2012; Jonas et al., 2005; Jungermann

& Fischer, 2005; Kalkstein et al., 2016; Kray & Gonzalez, 1999). As a result, while advice giving might promote wiser reasoning as a whole, this effect might be particularly strong for dimensions focusing on the context. Subsequently, advice giving might have primed wiser reasoning, but the unrelated dilemma that participants next read about was framed as a personal dilemma. As people facing a personal dilemma are focused on their own thoughts and feelings (relative to someone in an interpersonal situation), reducing ego-centrism might be the more applicable wise strategy.

Overall, Study 4 replicated previous findings and suggest that advice giving in a given situation may promote wise reasoning in future dilemmas. Although this study examined short-term effects, this finding is the first step in understanding the downstream effects of advice giving on cognitive processes.

CHAPTER 6: GENERAL DISCUSSION

Advice is an important part of social life, particularly when making decisions. Prior research has chiefly focused on the psychological processes involved in receiving advice (Bonaccio & Dalal, 2006). With regards to advice giving, developmental theorists argue that it can lead to the development of greater wisdom (e.g., Erikson et al., 1987; Erikson, 1950; McAdams & de St. Aubin, 1992; Slater, 2003). Indeed, advice giving involves socio-cognitive processes such as mentalization and psychological distance, all of which could hypothetically contribute to wiser reasoning (e.g., Danziger et al., 2012; Kross & Grossmann, 2012; Lombrozo, 2006; Staudinger & Baltes, 1996). My dissertation drew on prior theoretical insights from developmental and socio-cognitive psychology, testing whether advice giving promotes wisdom-related attitudes and cognitions. I predicted that advice giving would lead to wiser reasoning compared to personal decision making.

In Study 1, I examined twenty years of longitudinal data from a large, national sample of U.S. Americans, observing that advice giving and wisdom-related characteristics are cross-sectionally associated with each other. Further, I found some evidence that advice giving contributed to greater wisdom 10 and 20 years later. I then experimentally manipulated advice giving in Study 2, and found that participants who recalled social dilemmas where they gave advice reasoned more wisely about that dilemma compared to those recalling a personal dilemma. In Study 3, I used a standardized dilemma, and found that participants who were asked to give advice to a friend experiencing this dilemma reasoned more wisely than those who imagined it happening to them personally. In Study 4, I replicated these findings and also found that advice giving about a dilemma can prime wiser reasoning about a separate, unrelated dilemma. Taken together, these findings show the effect of advice giving on wise reasoning in

multiple domains: across the life course, in recollections of prior experiences, as well as in standardized dilemmas presented in a controlled, lab setting.

Notably, my dissertation revealed that the effect of advice giving on wise reasoning is not limited to one interaction. Prior manipulations to increase wise reasoning have only focused on shifting people's mindsets about one problem (Grossmann & Kross, 2014; Huynh et al., 2016; Kross & Grossmann, 2012). Only one study so far has looked at how a self-distancing manipulation improves the way married couples think about their conflicts over the course of a year (Finkel, Slotter, Luchies, Walton, & Gross, 2013). However, this study focused on emotional reappraisal and not wise reasoning. The present investigation is the first to show that experimentally manipulating wise reasoning can influence how people think about multiple problems.

For the rest of this section, I will discuss the potential mechanisms, unanswered questions, and implications of the present investigation. I then discuss some limitations of the studies I conducted, along with future directions for this work.

Potential Psychological Mechanisms

Aside from comparing advice giving and personal decision-making, I also examined how advice giving would compare to two related processes: mentalization and psychological distance. As I expected advice giving to be a unique process, I predicted that advice giving would promote wise reasoning to a greater degree than either mentalization or psychological distance.

Mentalization. Compared to someone making a decision alone, an advisor is more likely to simulate or be involved in a social interaction. Interacting with another person usually involves mentalization, which is the consideration another person's mental activity – their needs, feelings, goals, and beliefs (Epley & Waytz, 2010; Fonagy et al., 2011; Liljenfors & Lundh,

2015). As wise reasoning involves processes like considering and integrating multiple perspectives, mentalization could lead to greater wise reasoning. In support of this idea, prior work has found that reason more wisely when thinking about social versus non-social events (Grossmann et al., 2016).

I investigated whether advice giving had effects over and above mentalization in Study 2 by manipulating the presence of other people in the advice-giving interaction. Study 2 included two control conditions (in addition to the personal dilemma condition), where people either received advice or heard it being given to someone else (advice receiving and non-personal advice conditions, respectively). These two additional conditions involved recalling an interaction with someone else, which potentially includes mentalization. Notably, participants in these two conditions did not actually giving advice in those interactions. A planned contrast showed that advice giving led to wiser reasoning compared to all the control conditions. However, when examining post-hoc pairwise comparisons of conditions, the only significant contrast concerned advice giving and thinking about personal dilemmas. Advice giving was not significantly different from advice receiving or hearing non-personal advice, both of which fell in between advice giving and personal decision-making.

Although I found that advice giving leads to wiser reasoning compared to thinking about personal dilemmas, its relationship with other receiving or overhearing advice is unclear. One possibility for the discrepancy between the planned contrast and post-hoc analyses is that there was not enough power to detect differences between advice giving, advice receiving, and non-personal advice conditions. Notably, neither the advice receiving nor non-personal advice conditions were higher than the personal dilemma condition. This finding suggests that mentalization might not play a central role in the effect of advice giving on wise reasoning.

Another factor to note is that Study 2 involved recollections of past social dilemmas, and the variety of situations involved make it difficult to figure out which factors contributed to wiser reasoning for the advice giving, non-personal advice, and advice receiving conditions. The effect of mentalization might also be more apparent during an actual interaction instead of a recalled or simulated interaction.

Psychological Distance. In Study 3, I investigated whether advice giving had incremental benefits over the effect of psychological distance. Advisors tend to be more psychologically distant from a recipient's problems (Danziger et al., 2012; Jungermann & Fischer, 2005). People construe psychologically distant issues more abstractly (Trope & Liberman, 2010), which means that people would take a broader, less self-focused look at a given situation. Experimental research also suggests that inducing psychological distance through processes like self-distancing promotes wiser reasoning about conflicts (Grossmann & Kross, 2014; Kross & Grossmann, 2012). In other words, the effect of advice giving on wise reasoning could entirely be the function of increased psychological distance.

I investigated whether advice giving had effects over and above psychological distancing in Study 3. In this study, I added a control condition (in addition to the personal dilemma condition), where people thought about a friend's problem. This friend condition still involved psychological distance without the participant giving advice. A planned contrast showed that advice giving led to wiser reasoning compared to the friend and personal dilemma conditions. However, when examining post-hoc pairwise comparisons of conditions, I did not observe significant differences between any of the conditions.

These results suggest that advice giving leads to wiser reasoning overall compared to personal decision making. This finding was replicated in Study 4 as well. It seems unlikely that

the effect of advice giving can be completely explained by psychological distancing. There were no differences between the friend and personal dilemma conditions for overall wise reasoning, which might mean that this test was underpowered.

To summarize the findings of Studies 2 and 3, I found that advice giving promotes wiser reasoning compared to personal decision making. Concerning mentalization and psychological distance, my findings suggest that these processes do not completely explain advice giving's effect on wiser reasoning. However, I did not find clear differences in my post-hoc tests between conditions. Future studies might need increased power and experimental designs that can better tease apart the effect of advice giving, mentalization, and psychological distance on wise reasoning.

Unanswered Questions

Although my work provides evidence for the effect of advice giving on wise reasoning, more research is needed to get a better picture of underlying mechanism, outcomes, and boundary conditions of this effect. I reflect on some of these potential avenues for future research below.

What is the role of explanation in advice giving? One potential clue in figuring out what is special about advice giving is to examine how the advice is shared. Consider giving advice to a friend who is caught in a heated conflict with their parents. Someone can give advice with a direct recommendation: Apologize to your parents. Alternately, someone can give advice by explaining the situation: You should apologize, and let me explain how I think your parents are thinking about the situation. The second kind of advice involves more explanation, and explanation can help people think more abstractly about a problem (Lombrozo, 2006). Specifically, it helps explainers think abstractly in order to give an in-depth solution that can

generalize to other similar situations (Blanchard et al., 2017). Thinking abstractly could help the explainer move beyond a self-focused perspective and think about a wider set of considerations. In addition, explaining a concept can help people realize what they know and what they do not know (Rozenblit & Keil, 2002). This realization can lead to greater intellectual humility and having balanced views on contentious issues (Fernbach et al., 2013), both of which are involved in wise reasoning. As not all advice uses explanation, perhaps advice giving would only be effective when there is some explanation involved.

How does advice giving affect later reasoning processes? Another mechanism that needs to be examined is how advice giving influences how people think about later, unrelated situations. One observation I made in the present research is that the dimensions involved in wise reasoning varied across situations. In Studies 3 and 4, which used standardized dilemmas, the effect of advice giving on wise reasoning about the initial dilemma was primarily driven by dimensions that focused on the context: recognizing others' perspectives, acknowledging change and uncertainty, and seeking compromise and conflict resolution. Subsequently, the effect of wise reasoning on the unrelated dilemma was primarily driven by dimensions that reduced egocentrism: Intellectual humility and taking an outsider's vantage point.

This finding suggests that advice giving can have different effects depending on the kind of situation and when it happens. First, there may be an immediate effect of advice giving in a given moment, where individuals think about the wider context. This process might be particularly important when giving advice because they have to pay attention to another person and learn more about that person's situation. However, when they think about their own problems at a later point, they aim to refrain from being biased. The current investigation did not tease apart whether this shift in wise reasoning dimensions was due to the type or timing of the

dilemma. Recall that in Study 4, participant reasoned about an initial and unrelated dilemma. Looking at the type of dilemma, those in the advice giving condition thought about a friend's dilemma in the initial stage, but the unrelated dilemma was framed as a personal problem (those in the personal dilemma condition thought about personal problems for both conditions). Looking at timing, the initial dilemma came immediately after the manipulation, while the unrelated dilemma came after the participant had some time to think about the initial dilemma. Although it is still unclear whether the type or timing of dilemma is involved in Study 4, my findings suggest that wise reasoning manipulations do not necessarily have a uniform effect. Methods that boost wise reasoning – like advice giving – may have different effects as people think about multiple challenging situations.

When does advice giving backfire? Although my findings suggest that advice giving can lead to wiser reasoning, other work suggests that sharing information with others can lead to narrow and extreme views. For instance, discussing an issue with like-minded people can lead to more polarized attitudes (Schkade, Sunstein, & Hastie, 2010). In addition, explaining one's choices make people believe their interpretation of an event, even if new information invalidates their initial account (Ross, Lepper, Strack, & Steinmetz, 1977). This evidence dovetails with some work on abstraction, which suggests that thinking abstractly about issues leads to more extreme moral judgements (Eyal, Liberman, & Trope, 2008 but also see Eyal, Liberman, & Trope, 2014; Gong & Medin, 2012; Žeželj & Jokić, 2014). Advice-givers tend to think about a problem more abstractly (Danziger et al., 2012), so they could also end up thinking in more absolutist terms. This perspective conflicts with the research I reviewed earlier, which suggested that explanations and advice giving can lead to wiser and more balanced reasoning (e.g., Fernbach et al., 2013; Jonas et al., 2005; Lombrozo, 2006).

One way to resolve these opposing views is to investigate how invested an advisor is in their own opinions. Unpublished research investigated this idea by examining the process of explanation, which is used in advice giving. In an experimental study conducted before the 2016 U.S. Presidential elections, explanation (vs. description) led to wiser reasoning about political issues only if the individual was not highly invested in their own opinion (Huynh, Santos, Tse, & Grossmann, in prep). With this in mind, people who hold an extreme position on a given issue may not be good advisors in that particular domain, as they may be thinking in a more close-minded way.

Aside from one's prior beliefs, unbalanced power relationships might also contribute to advice giving that backfires. Experimental and field studies suggest that advice giving increases one's sense of power and that people who seek power are more likely to give advice to others (Schaerer, Tost, Huang, Gino, & Larrick, 2018). Increased feelings of power can lead to reduced perspective-taking (Galinsky, Magee, Inesi, & Gruenfeld, 2006), which could contribute to less wise reasoning. My current findings show that advice giving leads to increased wise reasoning, but it is unclear whether this effect is in spite of the negative effects of power or if it only works for people who are not in a position of power. One factor that could moderate the effect of power is an advisor's goals when giving advice. For instance, advisors can give advice either to help and care for others or to intrude in another's life (Goldsmith & Fitch, 1997). Using this framework, perhaps only those who aim to intrude might feel an increase in power.

Implications

The current investigation provides some promising findings regarding the role of advice giving in achieving greater wisdom. Prior efforts to promote wisdom have focused on prompts that shift an individual's mindset (Grossmann & Kross, 2014; Kross & Grossmann, 2012). The

present research potentially adds advice giving to the set of experimental methods that can facilitate wiser reasoning. In particular, Study 4 suggests that some of these effects can spillover to other unrelated dilemmas. While previously established methods involve intrapersonal processes (e.g., talking to the self using third-person pronouns), advice giving is an interpersonal processes. Given that for many problems it is less costly to resolve conflicts by engaging in social interactions (e.g., arguments, negotiations) as opposed to making a selfish decision or using force (e.g., De Dreu, 2014), it is important to examine how different communication processes influence wise reasoning.

This research also contributes to a greater understanding of advice-related outcomes in organizations. Past studies in organizational behavior have largely focused on the benefits of receiving advice (Bonaccio & Dalal, 2006), and few studies have examined the cognitive benefits for the advisor. Understanding the relationship between advice giving and wisdom can demonstrate additional intrinsic rewards for potential mentors. This research can also organizations with recommendations for how to create social environments that are conducive for wiser thinking. For instance, organizations can introduce norms or programs that encourage advising others, either as a peer or supervisor. Teams that encourage seeking and giving advice could make better collective decisions, and it might lead to improved individual performance.

Advice giving can also play an important role in education. Aside from developing academic skills, educators are also interested in finding ways to cultivate good character among their students (e.g., Althof & Berkowitz, 2006; Lickona, 1996). Teaching students how to wisely manage difficult situations in life is one promising route (Sternberg, Jarvin, & Reznitskaya, 2008). Encouraging advice giving and other forms of peer mentorship may be one way to facilitate wiser interaction inside and outside school. This approach dovetails with research that

suggests that peer mentoring and even self-explanations can help students learn more effectively (Chi, Bassok, Lewis, Reimann, & Glaser, 1989; Roscoe & Chi, 2007). Instead of simply using peer and self-explanations for academic concepts, educators could also encourage students to help each other manage interpersonal conflicts, moral dilemmas, and other life challenges.

Limitations and Future Directions

While the present research investigated the effects of advice giving using a variety of approaches that aimed to address different methodological challenges, some caveats should be considered. In discussing these limitations, I will also consider how future research can improve on and extend this work.

Multiple Assessments over Time. In Study 1, I only used items that assessed wisdom-related attitudes, and not wise reasoning specifically. In addition, these characteristics were framed as global attitudes instead of state-specific thoughts and behaviors. As wise reasoning varies from situation to situation (Brienza et al., 2017; Grossmann et al., 2016), it is important to measure situational contingencies surrounding state-specific wise reasoning across multiple days to get an accurate assessment of an individual's average tendency (Fleeson, 2001; Mischel & Shoda, 1995).

In addition, I only examined the effect of advice giving across particularly long or short time spans. Study 1 examined the effect over 10 or 20 years. In contrast, the spillover effect in Study 4 was short-term, as there was no filler task in between the initial and unrelated dilemmas. The unrelated dilemma was simply framed as being part of "the next part of the study." These time spans may have either been too long or short to detect other meaningful processes that might unfold. Micro-longitudinal studies such as daily diaries could capture changes in advice giving and wisdom over the course of a few days (e.g., Grossmann et al., 2016). In addition,

advice giving is often done in the context of a relationship, like a mentor and a protégé or among married couples (e.g., Allen, 2007; Brooks et al., 2015; Goldsmith & Fitch, 1997). This relationship means that how advice is given and received can affect future interactions, including whether or not the recipient will return to that particular advisor for future support. Assessing advice giving and wise reasoning in one relationship with multiple measurements over a year could shed light on the long-term effects of advice giving on decisions, conflicts, and satisfaction in the relationship (for an example with perspective-taking and conflict resolution, see Finkel et al., 2013).

Perceptions and Outcomes of Advice. In the current investigation, I focused on the mental processes involved in advice giving. However, all of the measures used in the studies were self-reported assessments of wisdom. Participants might have inflated their reported wisdom, as it is a highly valued quality. Studies 2, 3, and 4 addressed this possibility by using a self-report measure of wise reasoning that is typically free from self-enhancing biases (Brienza et al., 2017). Nevertheless, in future work, wise reasoning should be assessed through other methods, such as using trained raters to assess how one gives advice or thinks about a problem (Grossmann, 2017).

Another approach is to examine the recipient's evaluation of that advice. Prior research suggests that wise reasoning should lead to sound judgements. For instance, both lay people and professionals (e.g., lawyers, clinicians, and clergy) recognize the processes involved in wise reasoning as being wise (Bluck & Glück, 2005; Grossmann et al., 2013). However, I did not measure what a recipient would think of response of a participant that was reasoning wisely. The responses from the present studies were too short for any meaningful coding of wise reasoning, but future studies could have participants write a more substantial letter or record a video giving

detailed advice. Trained raters can code these responses for wise reasoning following established procedures (Grossmann et al., 2010, 2012) and a new set of participants can rate yoked advice responses to assess lay evaluations of the advice.

Another important process to examine in more detail is the perspective-taking strategy used by advisors. Research on perspective-taking failures suggests that although people may want to infer another's mental state, they do not always use accurate strategies (Eyal, Steffel, & Epley, 2018; Hadar & Fischer, 2008; Kray, 2000). For instance, simulating another's experience is more accurate than inferring what another person would do, but people tend to do the latter when asked to take the perspective of others (Zhou, Majka, & Epley, 2017). With this in mind, advisors might for instance indicate that they considered the perspective of others, when they in fact did it in an ineffective way. To address this issue, future studies could use more fine-tuned measures to investigate how people tried to understand another person's situation. In addition, researchers could use standardized problems (such as problems on leadership, management, and other topics from the Harvard Kennedy School Case Program) with expert-agreed criteria for sound decisions.

Examining a Wider Range of Situations. Concerning the experimental data, Study 2 examined a variety of situations, as participants could freely recall any kind of social dilemma. However, this study is subject to recall effects as people in the advice giving condition could have recalled different kinds of dilemmas compared to those in other conditions. To address this concern, Studies 3 and 4 used standardized dilemmas. Such standardized scenarios by default reduce the ecological generalizability of the phenomena. Both scenarios involved interpersonal conflicts between two friends or relatives, asking the decision-maker to choose a side. This kind of dilemma was used in prior research (Grossmann et al., 2010), and I modified them to ensure

that there were balanced arguments for each side. One drawback of using these dilemmas is that they only cover a small subset of the challenging situations people face in life. Future research could examine a wider range of problems, such as reconciling incompatible values or goals, assigning responsibilities, or resolving a transgression. Researchers could also examine advice giving in different fields such as parenting, teaching, professional mentorship, interactions with consultants, and doctor-patient relationships.

Further, I have largely investigated past or hypothetical dilemmas in a lab setting with little time pressure and low emotional stakes. It is unclear how advice giving might unfold in the middle of an active, heated conflict. Research on intergroup empathy and perspective-taking suggests that mentalizing processes can be beneficial when people reason abstractly, but they can be ineffective or even counterproductive during concrete interactions (Bruneau & Saxe, 2012; Vorauer & Sasaki, 2009). Future studies could ostensibly create conflicts in the lab or invite groups of people to discuss ongoing conflicts, with a participant either giving advice or getting personally involved. These kinds of studies could help identify the opportune and inopportune times to give advice.

Conclusion

Advice giving is more than a simple transfer of information, as it is also a way for advisors to uncover insights about challenging situations. I found that giving advice can promote wise reasoning for the advisor. This shift in wise reasoning not only applies to the specific situation which required advice, as advice giving also improves wise reasoning about an unrelated situation. Evidence for this effect comes from a wide range of sources – longitudinal data and lab experiments where people either recalled past dilemmas or thought about a standardized dilemma. The findings from the present investigation strengthen the notion that

wisdom is malleable. They also highlight the importance of sharing information with others as a means to cultivate one's personal wisdom. Looking forward, this work paves the way for new research investigating how communication processes shape people's thinking and how advisors are impacted by the support they give to others.

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APPENDICES

Appendix A: Supplementary Analyses for Study 1

Testing the Models without Low Loading Items

In Study 1, the items “You like to teach things to people” had relatively lower loadings compared to the other wise attitudes items. In addition, the item “In a bad situation it helps to find a different way of looking at things” was not conceptually related to the other advice giving items, which explicitly mentioned advice. I thus conducted the analyses on the cross-lagged panel model without these items.

The model had good fit, $RMSEA = .011$, $PCLOSE > .999$, $CFI = .999$. In line with the findings from the main text, advice giving was cross-sectionally associated with wise attitudes at all three time points (see Figure 7). Looking at longitudinal relationships, advice giving contributed to wiser attitudes over time across 20 years. This finding is similar to the finding reported in the main text. Wise attitudes did not predict greater advice giving over time. This result differs from the main text, where wise attitudes at Time 2 predicted greater advice giving at Time 3. These findings show a clearer pattern, although I chose to report all three items in the main text to cover a wider range of items. In sum, removing the two low-loading items still result in a similar pattern of findings compared to those reported in the main text.

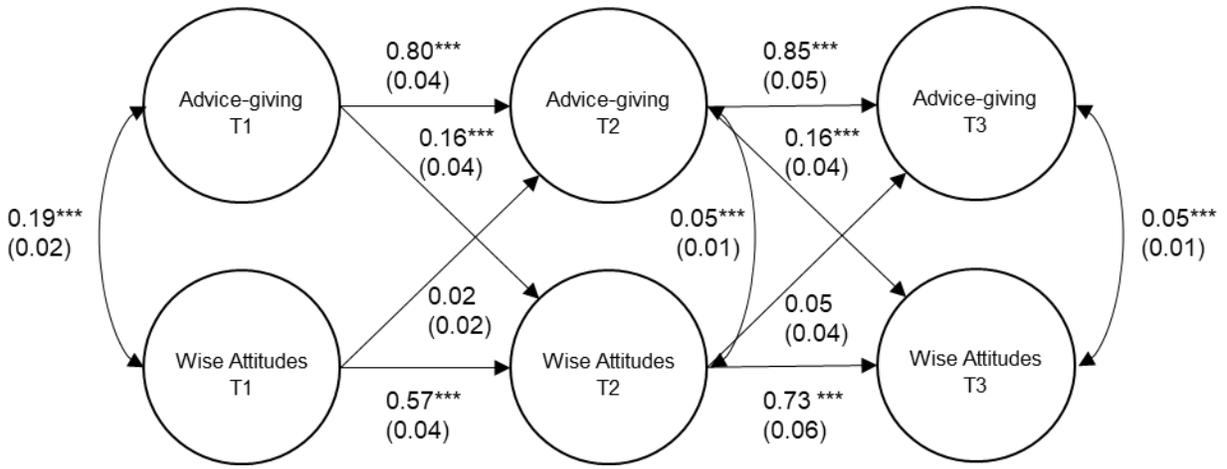


Figure 7. Cross-lagged panel model of advice-giving tendencies and wisdom-related attitudes across three time points (T1, T2, and T3) without low-loading items. Circles represent latent variables. Unstandardized estimates and significant errors are shown. The straight arrows represent regression paths and the curved arrows represent correlations between the residuals of the latent variables. * $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix B: Wise Reasoning Items for Studies 2, 3, and 4

As you have been thinking about this conflict, to what extent have you done the following:

1. Put myself in both parties' shoes
2. Thought about the things both parties might have in common
3. Made an effort to take both parties' perspective
4. Took time to consider both parties' opinions on the matter before coming to a conclusion
5. Looked for different solutions to the evolving conflict
6. Considered alternative solutions as I learned about the conflict
7. Believed the situation could lead to a number of different outcomes
8. Thought the situations could unfold in many different ways
9. Double-checked whether my opinion on the situation might be incorrect
10. Double-checked whether either party's opinions might be correct
11. Looked for any extraordinary circumstances before forming my opinion
12. Behaved as if there may be some information to which I do not have access
13. Tried my best to find a way to accommodate both parties' perspectives
14. Thought it may not have been possible, I searched for solutions that could result in both parties being satisfied
15. Considered first whether a compromise was possible in resolving the situation
16. Viewed it as very important that the parties resolve the situation
17. Tried to anticipate how the conflict might be resolved
18. Wondered what I would think if I were somebody else considering the situation
19. Tried to see the conflict from the point of view of an uninvolved person
20. Asked myself what other people might think or feel if they were considering the conflict
21. Thought about whether an outsider person might have a different opinion from mine about the situation

Note: Items are listed in presentation order.

Wise reasoning dimensions: recognition of others' perspective (items 1-4), recognition of change and uncertainty (items 5-8), intellectual humility (items 9-12), search for compromise and conflict resolution (items 12-17), and application of an outsider's vantage point (items 18-21).

Appendix C: Supplementary Analyses for Study 2

Controlling for Time Passed

Participants in Study 2 recalled times when they encountered a social dilemma. Those in the advice giving condition remembered more recent events (days in the past: $M = 20.11$, $SE = 3.21$) compared to those in the personal dilemma ($M = 46.76$, $SE = 13.50$), advice receiving ($M = 133.95$, $SE = 113.40$), and advice receiving conditions ($M = 141.46$, $SE = 106.65$). As people are more critical of their distant past compared to their more recent past (Wilson & Ross, 2001), those in the advice giving condition might have reported wiser reasoning compared to those in the other conditions because the advice-giving events were more recent. To rule out this concern, I computed residual scores of wise reasoning and the individual dimensions, controlling for how long ago the recalled event occurred (in days).

Wise Reasoning Composite. This data met the assumption for homogeneity of variance, $F(3, 410) = 2.08$, $p = .103$. A planned contrast analysis showed that participants in the advice giving condition reported wiser reasoning compared to those from the other three conditions, $F(1, 412) = 7.00$, $p = .008$, $\eta_p^2 = .017$ (see Figure 8). Post-hoc Tukey contrasts between each revealed that advice giving led to wiser reasoning compared to those who recalled a personal dilemma, $t(272) p = .012$. Overall, these results provide some support for my hypothesis that advice giving leads to wiser reasoning compared to reasoning about one's own or a friend's problem. These results are similar to those in the main text, with the addition of a significant contrast between advice giving and personal dilemma conditions.

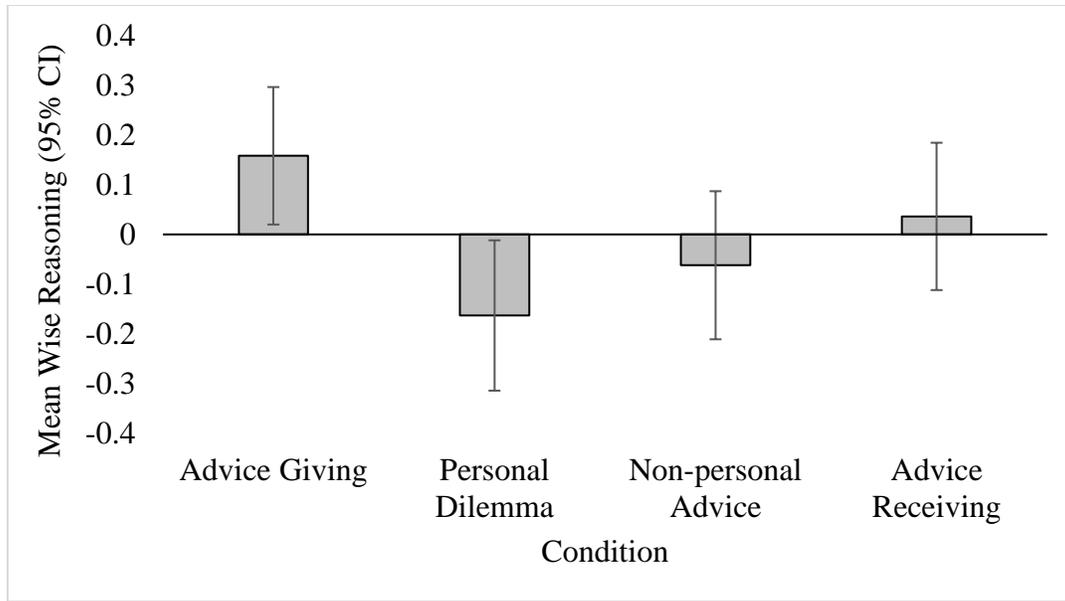


Figure 3. Bar chart of the effect of advice condition on the wise reasoning composite score (residuals).

Individual wisdom dimensions. Planned contrast analyses showed that participants in the advice giving condition scored significantly higher on the recognition of others' perspectives, and search for compromise/conflict resolution dimensions compared to those from other conditions, perspective: $F(1, 412) = 12.82, p < .001, \eta_p^2 = .030$, compromise/resolution: $F(1, 413) = 10.55, p = .001, \eta_p^2 = .025$ (see Table 7). Looking at the post-hoc tests between each condition, advice giving led to higher ratings compared to the person dilemma condition on the recognition of others' perspectives dimension and the search for compromise/resolution dimension, perspectives: $t(272) = 3.90, p < .001$, compromise/resolution: $t(272) = 2.53, p = .056$ (see Table 7). Those in the advice giving condition also reported marginally higher recognition of others' perspectives compared to those in the advice receiving condition, $t(290) = 2.46, p = .068$. In addition, advice giving led to a greater search for compromise/resolution compared to non-personal advice, $t(275) = 3.19, p = .008$. These findings are similar to the ones reported in the main text, with some slight differences in the post-hoc test results. There is now a significant contrast between advice giving and the personal dilemma conditions for the recognition of

others' perspectives dimension. In addition, there is no longer any contrast between the advice giving and personal dilemma conditions for the recognition of change/uncertainty dimension

With regards to other findings, advice receiving led to higher ratings of intellectual humility compared to those in the personal dilemma condition, $t(289) = 3.03, p = .014$. The planned contrast analyses did not show any significant differences for the recognition of change/uncertainty, intellectual humility, and the application of an outsider's vantage point dimensions, change/uncertainty: $F(1, 412) = 2.69, p = .102, \eta_p^2 = .006$, humility: $F(2, 412) = 0.50, p > .275, \eta_p^2 = .001$, outsider: $F(1, 412) = 2.14, p = .144, \eta_p^2 < .005$. None of the other contrasts yielded any significant results for these dimensions. These findings are similar to those reported in the main text.

In sum, the findings controlling for time passed were largely similar to those reported in the main text. These findings should be interpreted with caution, as across conditions, the means and standard errors of the number of days passed varied to a great degree.

Table 6. Means and Confidence Intervals for the Effect of Condition on Wise Reasoning Dimensions (Residuals)

	Perspectives	Change	Humility	Compromise	Outsider
Advice Giving	0.27 [0.10, 0.44]	0.11 [-0.05, 0.27]	0.06 [-0.12, 0.23]	0.23 [0.07, 0.40]	0.12 [-0.07, 0.32]
Personal Dilemma	-0.24 [-0.43, -0.05]	-0.04 [-0.21, 0.13]	-0.23 [-0.72, -0.03]	-0.08 [-0.27, 0.10]	-0.22 [-0.43, -0.01]
Non-personal Advice	-0.03 [-0.22, 0.16]	-0.06 [-0.23, 0.11]	-0.04 [-0.24, 0.15]	-0.16 [-0.34, 0.02]	-0.01 [-0.22, 0.19]
Advice Receiving	-0.05 [-0.24, 0.14]	-0.03 [-0.20, 0.14]	0.20 [0.005, 0.39]	-0.02 [-0.20, 0.15]	0.09 [-0.12, 0.29]

Note: Lower and upper 95% confidence intervals are presented within the brackets.

Appendix D: Materials for Study 3

Newspaper Advice Column

Dear A.:

I am close friends with a couple I'll call "Angie" and "Gil." I met them shortly after they got married, and we became friends very quickly.

The problem is, when Angie gets mad at Gil for whatever reason, she wants me to be mad too. She thinks I should take sides, and this makes me uncomfortable because they are both my friends. Gil has never asked me to take sides with him.

Angie has gone so far as to request that I ignore any attempts by Gil to contact me if they are fighting. (He actually doesn't reach out to me during these fights.) I feel bad for him and like I am betraying a friend by agreeing to do as she asks. I don't know how to explain to her that as they are both my friends, I would rather be left out of their arguments and not have to choose sides.

Appendix E: Materials for Study 4

Newspaper Advice Column 1

Below is the newspaper article from a "Dear Abby" column:

I am close friends with a couple: Angie and Gil. I met them shortly after they got married, and we became friends very quickly.

The problem is, when Angie gets mad at Gil for whatever reason, she wants me to be mad too. She thinks I should take sides, and this makes me uncomfortable because they are both my friends. Gil has never asked me to take sides with him.

Angie has gone so far as to request that I ignore any attempts by Gil to contact me if they are fighting. (He actually doesn't reach out to me during these fights.) I feel bad for him and like I am betraying a friend by agreeing to do as she asks. However, both of them are my good friends.

Newspaper Advice Column 2

Below is the newspaper article from a "Dear Abby" column:

I have one sister, whom I will call "Dawn", and one brother, "Curt." Our parents died six years ago, within months of each other. Ever since, Dawn has once a year mentioned buying a headstone for our parents. I'm all for it, but Dawn is determined to spend a bundle on it, and she expects her siblings to help foot the bill. She recently told me she had put \$2,000 aside to pay for it.

Recently Dawn called to announce that she had gone ahead, selected the design, written the epitaph and ordered the headstone. Now she expects Curt and me to pay "our share" back to her. She said she went ahead and ordered it on her own because she has been feeling guilty all these years that our parents didn't have one. I feel that since Dawn did this all by herself, her siblings shouldn't have to pay her anything. But I know that if Curt and I don't pay her back, they'll never hear the end of it.

Unrelated Dilemma 1

Imagine that the conflict below is happening to you.

You are close friends with a couple: Angie and Gil. You met them shortly after they got married, and you became friends very quickly.

The problem is, when Angie gets mad at Gil for whatever reason, she wants you to be mad too. She thinks you should take sides, and this makes you uncomfortable because they are both your friends. Gil has never asked you to take sides with him.

Angie has gone so far as to request that you ignore any attempts by Gil to contact you if they are fighting. (He actually doesn't reach out to you during these fights.) You feel bad for him and like you are betraying a friend by agreeing to do as she asks. However, both of them are your good friends.

Unrelated Dilemma 2

Imagine that the conflict below is happening to you.

You have one sister, Dawn, and one brother, Curt. Your parents died six years ago, within months of each other. Ever since, Dawn has once a year mentioned buying a headstone for your parents. You are all for it, but Dawn is determined to spend a bundle on it, and she expects her siblings to help foot the bill. She recently told you she had put \$2,000 aside to pay for it.

Recently Dawn called to announce that she had gone ahead, selected the design, written the epitaph and ordered the headstone. Now she expects you and Curt to pay "our share" back to her. She said she went ahead and ordered it on her own because she has been feeling guilty all these years that our parents didn't have one. I feel that since Dawn did this all by herself, her siblings shouldn't have to pay her anything. But I know that if you and Curt don't pay her back, you'll never hear the end of it.