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What types of advice do decision-makers prefer?

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ABSTRACT

In the decision-making literature, "advice" has typically been defined very restrictively, as a recommendation concerning which alternative the decision-maker should choose. The present paper examines decision-makers' reactions to this and three additional types of advice (a recommendation concerning which alternative *not* to choose, information about alternatives, and a recommendation concerning *how* to make the decision), along with another common form of interpersonal assistance (Social Support), from the perspective of maximizing decision accuracy and maintaining decision autonomy. The role of situational and individual differences is also examined. Results from two multilevel policy-capturing studies indicate that, although they consider recommendations regarding which alternative to choose to be important in some contexts, decision-makers often prefer to receive a type of advice that is greatly understudied by researchers—namely, the provision of information about alternatives. The implications of these findings for the study of advice-taking are discussed, as are future research directions.

Introduction

People often seek the advice of others before making decisions. Such decisions have been studied under rubrics such as the Judge-Advisor System (e.g., Bonaccio & Dalal, 2006; Sniezek & Van Swol, 2001), the Hierarchical Decision-Making Team (e.g., Hollenbeck et al., 1995; Humphrey, Hollenbeck, Meyer, & Ilgen, 2002), and Staff Decision-Making (Brehmer & Hagafors, 1986). In the current paper, we present two studies that, collectively, address several important issues. First, we maintain that the prevailing conceptualization of the term "advice" in the judgment and decision-making literature is overly restrictive. In this context, we introduce several additional types of advice and we examine decision-makers' reactions to these types of advice. Second, we discuss decision-makers' accuracy and autonomy motives related to advice-taking. Indeed, the different types of advice have different implications for these two motives. Third, we assess whether individual differences in decision-makers influence which types of advice are preferred and which are not. Finally, we take steps to assess the generalizability of our findings across situations.

Construct definitions of advice

The decision-making research on advice giving and taking has typically defined advice as a specific recommendation concerning what the decision-maker ought to do (e.g., Harvey & Fischer, 1997). For example, if the decision involves choosing among academic job offers at universities *A*, *B*, and *C*, the advice would endorse one of these alternatives—for instance, "Choose university *C*."

However, several researchers have begun to question this prevailing definition. In their review of the advice literature, Bonaccio and Dalal (2006) argue that the literature has paid insufficient attention to the fundamental question of what advice is and what it is not. They further argue that a recommendation in favor of a particular course of action (hereafter referred to as "Recommend For") represents only one facet of a broader advice construct. Several other authors (e.g., Gibbons, 2003; Goldsmith & Fitch, 1997; Harvey & Bolger, 2001; Heath & Gonzalez, 1995; Horowitz et al., 2001; Van Swol & Sniezek, 2005) have also discussed the possibility of additional types of advice. This, then, raises the question of which other types of advice should be studied.

One additional type, suggested by Bonaccio and Dalal (2006), is a recommendation *against* a particular course of action (hereafter, "Recommend Against"). In our academic job offer example, the advisor may caution: "*Don't* choose university *B*." We are unaware of any existing empirical study that has studied this advice type.

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However, an analogy may be drawn between the advice types of Recommend For and Recommend Against, on the one hand, and the pre-choice decision strategies of inclusion and exclusion, respectively, on the other. Research on such decision strategies suggests that exclusion is used at least as often as inclusion (Heller, Levin, & Goransson, 2002). Thus, insofar as one can extrapolate from decision strategies to types of advice, it is likely that Recommend Against is a common type of advice.

A third advice type is the provision of information concerning one or more alternatives, without explicit endorsement of any alternative (hereafter, "Information"). Information is typically "presented in a factual or non normative framework"; in contrast, Recommend For (and presumably Recommend Against as well) "has a normative, almost moral dimension describing certain courses of action" (Pilnick, 1999, p. 614). In our academic job offer example, when providing Information the advisor may say, "At university *A*, the department occupies a beautiful new building with very large faculty offices." Information as a type of advice has been suggested in the communication literature (Goldsmith, 2000; Goldsmith & Fitch, 1997), the conversational analysis literature within sociology (Heritage & Sefi, 1992; Pilnick, 1999), and, occasionally, the advice-taking literature itself (Gibbons, 2003; Harvey & Bolger, 2001; Van Swol & Sniezek, 2005).

A fourth type of advice involves the process by which the decision is made (Gibbons, 2003). Thus, the advisor may provide support directed toward helping the decision-maker decide how to decide (hereafter, "Decision Support"). For instance, when choosing among academic job offers at various universities, the advisor may suggest using a weighted additive model instead of clinical judgment (Dawes, 1988). Because the focus of this recommendation is on the structure rather than the content of the decision, no alternatives are explicitly prescribed or proscribed. In the extant literature, Decision Support appears to have been studied primarily within the context of technology-driven Decision Support Systems that, among other functions, aim to provide effective ways of displaying information and structuring problems (e.g., Power, 2002). However, there is no reason why Decision Support cannot be provided by human advisors as well—as exemplified by Benjamin Franklin's letter to Joseph Priestly: "I cannot. . .advise you *what* to determine, but if you please I will tell you *how*. . ." (Bigelow, 1887, p. 522; emphases in original).

The aforementioned types of advice may in many cases be accompanied by another form of interpersonal assistance: the provision of socio-emotional support acknowledging the importance and difficulty of the decision to be made (hereafter, "Social Support"). This type of assistance, studied extensively in the communication literature (e.g., Goldsmith, 2000; Goldsmith & Fitch, 1997; but see also Gibbons, 2003; Heath & Gonzalez, 1995), is provided by advisors with the aim of helping decision-makers regulate emotional distress by increasing their decision-related self-efficacy and by providing them acceptance and a sense of belonging (Horowitz et al., 2001). To continue the example of choosing among academic job offers at universities, the advisor might demonstrate that he or she empathizes with the decision-maker, and might explain that anxiety about such an important and complex decision is to be expected.

We examine (and compare) the aforementioned four types of advice as well as Social Support. Because Social Support is not a type of *advice per se*, but is instead a form of the broader construct of interpersonal *assistance*, we henceforth refer to the five types of assistance (rather than advice). We assess the types of assistance to which decision-makers react more versus less positively—that is, the types of assistance with which decision-makers are more versus less satisfied, the types of assistance they find more versus less useful, and so forth (see Method section for more details). Our assessment of decision-makers' reactions to various types of assistance is a specific instantiation of an essential scientific question: the relative importance of several predictor variables with regard to a given criterion (Azen & Budescu, 2003).

Decision-makers' motives

Several motives may influence decision-makers' receptivity to interpersonal assistance from an advisor. However, motives other than maximizing decision accuracy have not been studied systematically. In the current section, we discuss how not only the motive to maximize accuracy but also the motive to maintain autonomy is likely to be related to the various types of assistance articulated in the previous section.

Maximizing decision accuracy

The judgment and decision-making literature on advice (e.g., Bonaccio & Dalal, 2006; Brehmer & Hagafors, 1986; Phillips, 1999; Yaniv, 2004) typically assumes that advice is sought out to improve the accuracy of decisions. This assumption is typically justified (e.g., Schrah, Dalal, & Sniezek, 2006), although the extent of improvement depends on several factors (e.g., Hollenbeck et al., 1995; Sniezek, Schrah, & Dalal, 2004). However, an issue that has not previously been taken into account is that decision-makers might consider some types of assistance to be more likely than others to increase decision accuracy. Decision Support is likely to be useful because it can offer decision-makers new ways to structure the decision problem and strategies to solve it. Information, too, is likely to be beneficial, especially if it is novel to the decision-maker (Heath & Gonzalez, 1995). Recommend For is also helpful because it serves as an evaluative summary of the decision problem (Schrah et al., 2006), and therefore has the potential to quickly orient the decision-maker toward the best alternative. On the other hand, Recommend Against has somewhat less potential to be useful, because it only tells decision-makers what *not* to do. Finally, Social Support is unlikely to have any appreciable impact on decision accuracy. Thus, in situations where accuracy is of great concern (e.g., when the consequences of incorrect decisions are large; Meyer, Dalal, & Bonaccio, 2009), we expect that decision-makers will prefer Information, Decision Support and Recommend For to Recommend Against, and that they will in turn prefer Recommend Against to Social Support.

Maintaining decision autonomy

Many communication researchers (e.g., Caplan & Samter, 1999; Goldsmith, 2000; Goldsmith & Fitch, 1997) maintain that people react less positively to interpersonal communications that violate their claim to autonomy and non-imposition by others. Research in social psychology likewise suggests that help of any kind leads to a restriction of freedom, which in turn may result in a negative psychological state called reactance (Brehm, 1966) and, more generally, in a threat to self-esteem (Fisher, Nadler, & Whitcher-Alagna, 1982). In addition, researchers of human motivation have long argued that autonomy is a central human need (Deci & Ryan, 1991; Murray, 1938): individuals prefer to be "origins" of their actions than "pawns" to external pressure (deCharms, 1968; Deci & Ryan, 1991) such as when an advisor attempts to control the decision outcome.

Some types of assistance are likely to maintain decision-makers' autonomy more than others. The communication literature (e.g., Caplan & Samter, 1999; Goldsmith, 1994) suggests that decision-makers will interpret Recommend For, in particular, as limiting their autonomy by delineating courses of action that they ought to follow. Autonomy would probably be threatened to a somewhat lesser extent by Recommend Against because, relative to Recommend For, it excludes fewer alternatives for the decision-maker. Even greater autonomy is preserved via Information and Decision Support, because they do not explicitly prescribe or proscribe any alternative: "an item received as general information need have no personal implication for what a person. . .may do" (Pilnick,

1999, p. 613). Finally, autonomy is unlikely to be diminished by the provision of Social Support (Caplan & Samter, 1999). Thus, in situations where autonomy is of great concern—for example, when advice is provided unsolicited or by novice advisors—we expect that decision-makers will prefer Social Support to Information and Decision Support, which will in turn be preferred to Recommend Against, and, finally, to Recommend For.[1]

Balancing accuracy and autonomy

As alluded to above, the importance of both accuracy and autonomy is likely to differ as a function of the situation. When both maximizing accuracy and maintaining autonomy are of relatively equal importance, decision-makers should prefer Information and Decision Support to Recommend For, Recommend Against, and Social Support.

Individual differences in reactions to types of assistance

The predictions above are for the average decision-maker, but may not apply to *every* decision-maker. It is therefore important to investigate individual differences in preferences for the various types of assistance.

Gender

In the communication literature, a popular proposition is that gender-specific socialization leads to gender-specific patterns of interaction and communication. In particular, there is some evidence that women react better than men to Social Support (Basow & Rubenfeld, 2003; Michaud & Warner, 1997; although see MacGeorge, Graves, Feng, Gillihan, & Burleson, 2004). We therefore predict that advice interactions that include Social Support will be reacted to better by women than by men.

Interpersonal dependency

The idea of interpersonal dependency is particularly relevant. The dependent personality has been conceptualized as the type of person who (among other things) does not like to function autonomously, tends to ask others for help and reassurance, and defers to others in the context of interpersonal situations (Bornstein & Cecero, 2000). Several individual differences are theoretically relevant to interpersonal dependency (Bornstein & Cecero, 2000), and we focus on three such constructs. The first such construct is the personality trait of agreeableness. Because highly agreeable individuals are more compliant than highly disagreeable individuals (Digman, 1990), they are also less likely to be resistant to assistance. In addition, because agreeable individuals are more trusting of others than their disagreeable counterparts, and because trust in turn is an important precursor of advice-taking (Bonaccio & Dalal, in press; Sniezek & Van Swol, 2001), agreeable individuals are less likely to be resistant to assistance. The second construct is the dependent decision-making style, which is characterized by a search for advice from, and a relinquishment of responsibility for decisions to, other people (Scott & Bruce, 1995). The third construct is decision-making anxiety. Decision-making anxiety is associated with indecisiveness (Frost & Show, 1993); moreover, anxiety in general is associated strongly with dependency (Bornstein & Cecero, 2000). Individuals' standings on these three traits should thus be related to their reactions to assistance from others. We therefore predict that agreeable, dependent and anxious decision-makers will react more positively than disagreeable, independent and unanxious decision-makers to all five types of assistance.

Situational differences in decision-makers' reactions to types of assistance

We have predicted that decision-makers will prefer certain types of assistance to others. Yet, one issue is whether decision-makers' preferences vis-à-vis types of assistance generalize across situations (contexts). The present research takes three steps toward assessing generalizability across situations. First, Study 1 involved advice that was not explicitly solicited whereas Study 2 involved advice that was. Autonomy concerns are likely to be greater when advice is not explicitly solicited (Goldsmith & Fitch, 1997). Second, Study 1 assessed decisions faced by college students whereas Study 2 assessed decisions relevant to the workplace and financial investments. Third, Study 1 involved advisors who were friends of the decision-maker, and therefore not particularly expert or credible (cf. Birnbaum & Stegner, 1979), whereas Study 2 involved advisors who were subject-matter experts.

Summary

The current paper uses two studies to build on extant research that has suggested the need for an expanded construct of advice. Four types of advice are proposed here: Recommend For (the typical conceptualization of "advice" in the decision-making literature), Recommend Against, Information, and Decision Support. These types of advice are evaluated in conjunction with another common form of interpersonal assistance: Social Support. The current paper aims to determine decision-makers' reactions to these five types of assistance—and thereby to provide a better understanding of what decision-makers want from their advisors. Several dependency-related individual differences and gender are hypothesized to influence decision-makers' reactions to these types of assistance, and certain situational differences are studied with the goal of addressing the generalizability of the results.

Study 1

Method

Sample

Undergraduate students ($N = 246$) at a large university in the Midwestern United States participated as part of a course requirement. A majority (62.4%) of the sample was female, and the mean age was 18.96 ($SD = 1.68$).

Overview of procedure

The present study elicited participants' preferences via "policy-capturing" (also known as "judgment analysis"; Cooksey, 1996), a technique in which participants respond to a series of scenarios across which the values of several cues are manipulated. The scenarios in the present study were putative interactions with the advisor, and the cues were the five types of assistance whose presence versus absence was manipulated across scenarios. Participants' decision policies could then be captured across scenarios by predicting their responses via the presence versus absence of the various types of assistance.

We were interested in how the "average decision-maker" rated the types of assistance relative to each other. We were also, however, interested in the extent of variability across decision-makers in preferences for each type of assistance, and in whether this variation could partly be explained by specific individual differences. We additionally investigated two situational (context) differences with the goal of assessing the generalizability of results across situations.

[1] Although the extent of autonomy maintained after the receipt of a given type of assistance is likely to depend on the situation, we (consistent with self-determination theory; Deci & Ryan, 1991) view autonomy as a continuum, and we maintain that in most situations certain types of assistance allow decision-makers to maintain more autonomy than do other types of assistance.

Thus, the current research adopted a multilevel approach, focusing both on the policy-capturing scenario level (i.e., the within-person level) and the decision-maker level (i.e., the between-person level). This approach is consistent with a Brunswikian philosophy whereby idiographic analyses are always performed but, when necessary, are followed by nomothetic aggregation (Cooksey, 1996).

Instructions and training

Participants were asked to imagine that they were faced with a decision (described to them in a short written scenario), and that they would view multiple scenarios describing things their friend—the term "advisor" was deliberately not used—could have said about their decision. The participants' task was to answer questions concerning how they would have felt after each such interaction. Participants were reminded that the content of their friend's statements would change across scenarios. Next, as is recommended in the policy-capturing literature (Karren & Barringer, 2002), participants were familiarized with the set of four post-profile questions and answered a practice scenario.

Policy-capturing cues

A completely-crossed (full factorial) design—one that incorporates all possible combinations of cue values—was employed to create the scenarios. This design was chosen due to a lack of extant information regarding the inter-correlations between all the types of assistance in real advising situations. Five cues were employed, each of which was varied on two levels representing whether the advisor had or had not provided the type of assistance in question—that is, whether the type of assistance was present or absent in the interaction. This yielded 32 different scenarios. Two additional (duplicate) scenarios were included as a test–retest reliability check (Karren & Barringer, 2002). Thus, each person was presented with 34 scenarios in total.

Fig. 1 presents an example scenario. As can be seen in the Figure, each scenario first contained an abbreviated reiteration of the instructions to subjects, followed by the cues (i.e., types of assistance) relevant to the particular scenario, followed in turn by the criterion (i.e., dependent variable) questions. For reasons described subsequently, we created a composite criterion for each scenario by averaging responses to the four questions that followed each scenario. Test–retest reliability for this composite criterion was 0.82 for both duplicate scenarios.

Between-subject manipulations

As discussed previously, the present study was simultaneously idiographic and nomothetic. In particular, two issues were of interest: (1) What is the decision policy for the "average decision-maker"? In other words, aggregating across all decision-makers, which types of assistance are preferred and which are not? (2) To what extent does the "average decision-maker" accurately characterize all decision-makers? In other words, do decision-makers vary in their decision policies—and, if so, why?

Scenario 8

You will be graduating at the end of the academic year, and have therefore begun searching for a job. A while ago, you sent out applications for a wide variety of openings. You received many offers to come in for a final interview. **You have now received five job offers (from Organizations A, B, C, D and E) and need to make a final decision about which job to accept.** You want to make sure you select the best job offer. You have talked this issue over with a friend, and **here is what your friend said.**

- I think you should pick job C.
- Company B has flexible working hours; I know because I have worked there.
- There's a bunch of different ways you could go about making this decision; for example, doing a list of pros and cons could be helpful.
- I understand that this is a really tough decision for you; choosing a job is a very stressful decision.

1. How **satisfied** would you be with this interaction?

1	2	3	4	5
Not at all Satisfied	*Slightly Satisfied*	*Moderately Satisfied*	*Very Satisfied*	*Extremely Satisfied*

2. How **useful** would this interaction be for you?

1	2	3	4	5
Not at all Useful	*Slightly Useful*	*Moderately Useful*	*Very Useful*	*Extremely Useful*

3. How **likely** would you be to discuss future decisions with this person?

1	2	3	4	5
Not at all Likely	*Slightly Likely*	*Moderately Likely*	*Very Likely*	*Extremely Likely*

4. How **important** would you believe this person thought your decision was?

1	2	3	4	5
Not at all Important	*Slightly Important*	*Moderately Important*	*Very Important*	*Extremely Important*

Note. This example scenario uses the job-choice decision and verbatim cue wording. In it, the Recommend Against type of assistance is absent—and hence omitted.

Fig. 1. Example of policy-capturing scenario employed in Study 1.

Table 1
Types of assistance and cue wording (job-choice decision, Study 1).

Type of assistance	Meta-discussion wording		Verbatim wording
	Type of assistance given	Type of assistance not given	Type of assistance given
Recommend For	Your friend specifically recommends a particular job offer out of the five	Your friend does not specifically recommend a particular job offer out of the five	I think you should pick job C
Recommend Against	Your friend specifically recommends *against* a particular job offer out of the five	Your friend does not specifically recommend *against* a particular job offer out of the five	I *don't* think you should pick job D
Information	Your friend specifically provides new information or facts about one or more of the job offers	Your friend does not specifically provide new information or facts about one or more of the job offers	Company B has flexible working hours; I know because I have worked there
Decision Support	Your friend specifically suggests ways to go about making the decision	Your friend does not specifically suggest ways to go about making the decision	There's a bunch of different ways you could go about making this decision; for example, doing a list of pros and cons could be helpful
Social Support	Your friend specifically empathizes with you	Your friend does not specifically empathize with you	I understand that this is a really tough decision for you; choosing a job is a very stressful decision

Note: In the "verbatim" wording condition, when the specific type of assistance was not given (e.g., the advisor did not provide a recommendation for a course of action), the relevant statement was simply omitted.

One approach to the second issue involved assessing naturally-occurring variation by assessing individual differences in decision-makers (see the Measures sub-section). A second approach involved creating variation via systematic manipulations in order to assess generalizability across situations. Accordingly, 16 between-subjects conditions were created, following a 2 (scenario content) × 2 (cue wording) × 2 (scenario order) × 2 (cue order) design, as described in more detail subsequently. Participants were randomly assigned to conditions.

Scenario content. We used two decision-making contexts that would be relevant to undergraduate students: deciding which of five job offers to accept after graduating from college and deciding which of five candidates to select for an officer position in a student organization.

Cue wording. Two types of wording for the five cue statements were used. Specifically, participants were randomly assigned to "verbatim" or "meta-discussion" cue wordings (see Table 1). In the verbatim wording condition, participants read cue statements that resembled verbatim transcripts of what their friend (the advisor) purportedly said. For example, in cases where Recommend For was "present," they were told that their friend had said "I think you should pick job C." In those cases where a particular type of assistance had not been provided by the advisor (i.e., was "absent"), the relevant statement was simply omitted. For the one scenario in which none of the types of assistance had been provided, participants read "Your friend doesn't have anything to say." In the scenario reproduced in Fig. 1, four of the five types of assistance are present (in order, they are: Recommend For, Information, Decision Support and Social Support); the Recommend Against type of assistance is absent in this scenario, and is therefore omitted.

In the meta-discussion wording condition, on the other hand, participants read statements that described the content of the cues at a more abstract level. For example, participants read the following when Recommend For was present: "Your friend specifically recommends a particular job offer out of the five." When Recommend For was absent, they read: "Your friend does not specifically recommend a particular job offer out of the five."

The two types of wording were used because each presented advantages and disadvantages, and therefore using both types of wording would provide for more robust conclusions. The verbatim wording was more realistic and ecologically valid than the meta-discussion wording. The verbatim wording may also have been easier to understand than the meta-discussion wording. To ensure that participants did adequately understand the meta-discussion wording, we first provided participants with expanded cue definitions as well as several concrete examples associated with each cue statement, and we then used multiple-choice questions to test participants' level of understanding (which turned out to be uniformly high). A potential limitation of the verbatim wording was that only statements pertaining to the types of assistance actually offered ("present") were provided in each scenario, leading to scenarios of different lengths. Participants may therefore have reacted to the length, rather than the content, of scenarios. The meta-discussion wording, in contrast, involved an approximately constant length per scenario. Moreover, with the verbatim wording alone, it would not have been possible to determine whether, for example, Information was valued more than Social Support, or whether the specific cue wording used to represent Information was valued more than the wording used to represent Social Support. The use of the meta-discussion wording alleviated this concern as well.

Scenario order and cue order. We counterbalanced (between-subjects) the order in which the scenarios were presented to subjects, as well as the order in which the cue statements within each scenario were presented to subjects. These two control variables have no theoretical significance, and are therefore not discussed in the Results section.

The scenario content, cue wording, scenario order and cue order manipulations yielded 16 between-subjects conditions, which were super-imposed on the policy-capturing design.

Measures

Criterion variables. Participants responded to four questions assessing their reactions to each of the advice scenarios. The questions were: "How satisfied would you be with this interaction?" (affective reaction), "How useful would this interaction be for you?" (cognitive reaction), "How likely would you be to discuss future decisions with this person?" (behavioral intention reaction), and "How important would you believe this person thought your decision was?" (cognitive reaction). A 5-point response scale (1 = Not at All, 5 = Extremely) was provided, as shown in Fig. 1. Responses to the four questions were strongly correlated at both the within-person and between-person levels of analysis.[2] Moreover, principal component analyses indicated the existence of a single principal component at both the within-person and between-person levels. We therefore created a composite criterion by averaging across all four

[2] Although it is possible that the high inter-correlation between the individual criterion questions represented a problem with measurement—for example, "halo" error (Cooper, 1981) or a response set (Cronbach, 1950)—we believe it is more likely that the policy-capturing cues represented a "strong" situation (Meyer et al., 2009; Meyer, Dalal, & Hermida, in press; Mischel, 1977) in which participants' affective, cognitive, and behavioral reactions to stimuli operated in concert.

questions for each scenario. The analyses discussed subsequently use this composite criterion variable, which is defined as decision-makers' overall reactions to the advice interaction. It should, however, be noted that the pattern of results remained very similar when each of the four aforementioned questions was analyzed separately.

Individual differences. Agreeableness was measured using 14 items from the International Personality Item Pool (Goldberg, 1999). The dependent decision-making style was measured using Scott and Bruce's (1995) five-item scale. Decision-making anxiety was measured via five items, two of which were taken from Frost and Show (1993) and the remaining three of which were written specifically for the current study.[3] A five-point response scale (1 = Strongly Disagree, 5 = Strongly Agree) was used for all measures.

Results

The data consist of policy-capturing scenarios (i.e., advice-related interactions) nested within decision-makers. Thus, two levels of analysis are present here: the scenario or within-person level, and the decision-maker or between-person level. Multilevel modeling (also known as random coefficient modeling or hierarchical linear modeling; Raudenbush & Bryk, 2002) is therefore used to analyze the data.

Justification for a multilevel approach

The first step in multilevel analyses is to assess the extent to which variance in the criterion variable—decision-makers' overall reactions to a given advice interaction—is due to within-person sources (i.e., types of assistance) versus between-person sources (i.e., individual or situational differences). The percentage of between-person variance is estimated via a multilevel model that is conceptually equivalent to a one-way ANOVA with decision-makers' overall reactions to advice interactions as the dependent variable and "decision-maker" (i.e., an identification number for each decision-maker) as the independent variable (Raudenbush & Bryk, 2002). Results indicated that 16.2% of the overall variance in decision-makers' reactions was between-persons variance, with the remainder (83.8%) being within-person variance. This amount of between-person variance was significantly greater than zero, χ^2 (243) = 1741.28, $p < .05$. Thus, although the preponderance of variance in the criterion was within-person variance, the statistically significant between-person variance justified a multilevel approach whereby individual and situational differences can be modeled as moderators of the within-person relationship between the types of assistance and decision-makers' reactions to the advice interactions.

Decision-makers' reactions to the types of assistance

The next step involves the assessment of the relative importance of the five types of assistance to decision-makers. We regressed decision-makers' reactions to policy-capturing scenarios on variables indicating the presence versus absence of the types of assistance in those scenarios. Because the five types of assistance were manipulated within-persons, the substantive predictor variables in this model are all within-person variables. The multilevel model used here essentially computes a separate regression equation per decision-maker (an idiographic approach) and then aggregates the regression coefficients across decision-makers (a nomothetic approach). The relative importance of the types of assistance can be observed via the magnitudes of their standardized regression coefficients (gammas).

Results of this analysis are summarized in Table 2. The results indicated that decision-makers' responses were made on the basis of all five policy-capturing cues (i.e., $p < .05$ for all five types of assistance). Decision-makers responded positively to the presence of all five types of assistance, but they responded most positively to Information ($\gamma = .42$) and did not distinguish between the other types of assistance (γs = .24–.25).[4] A contrast revealed that decision-makers responded significantly more positively to Information than to the remaining types of assistance, χ^2 (1 *df*) = 190.83, $p < .05$. Contrary to our expectations, however, decision-makers' reactions to Decision Support did not differ significantly from their reactions to the remaining three types of assistance.

The model with the five types of assistance as predictors explained a median of 77.7% of the variance (interquartile range = 66.5–85.1%) in advice reactions across decision-makers. Similarly, the median level of "cognitive control" (Cooksey, 1996; Hammond & Summers, 1972)—that is, the multiple correlation between types of assistance and advice reactions—was 0.88 (interquartile range = 0.82–0.92) across decision-makers.

Yet, supporting the previous finding that a significant percentage of the variance in decision-makers' reactions to advice was explainable by between-person factors, the model also suggested that the relationships between types of assistance and decision-makers' reactions to scenarios varied significantly across decision-makers (χ^2s (243 *df*) = 1309.18, 1012.59, 1119.72, 1206.64 and 1461.99 for Recommend For, Recommend Against, Information, Decision Support and Social Support respectively; all $p < .05$). We assessed this between-person heterogeneity across within-person relationships in two ways. First, we examined whether distinct clusters of decision-makers could be identified in terms of their decision policies. Second, we examined whether decision-makers' responses to one or more types of assistance varied as a function of certain individual and/or situational differences.

Cluster analysis of decision-makers' decision policies

In the previous section, we aggregated nomothetically across every decision-maker's decision policy. The existence of heterogeneity in decision policies, however, suggests the possibility of distinct clusters of decision-makers, such that decision policies will be more similar within the same cluster than across clusters (Cooksey, 1996). To test this idea, we used the TwoStep cluster analysis procedure (Norušis, 2008; SPSS, 2001), wherein pre-clusters are created at the first step and are themselves clustered at the second step via hierarchical methods. In this procedure, the number of clusters is determined via an auto-cluster algorithm that uses a combination of two criteria, the ratio of Bayesian Information Criterion (BIC) changes and the ratio of log-likelihood distance measures, with large ratios being preferred for both criteria. Results indicated a two-cluster solution. In the first cluster ($n = 153$), the mean (across decision-makers) standardized regression coefficients were 0.46 for Information, 0.33 for Recommend For, Recommend Against and Social Support, and 0.30 for Decision Support. In the second cluster ($n = 93$), the mean standardized regression coefficients were 0.37 for Information, 0.15 for Decision Support, 0.13 for Social Support, and 0.11 for Recommend For and Recommend Against. Overall, then, two conclusions can be drawn from the cluster analysis: (1) in both clusters, Information was considered more important than the other four types of assistance (whereas differences among the other types themselves were small), and (2) the importance weights for all five types of assistance were lower in the second cluster than in the first cluster.

[3] A complete list of these items is available from the first author.

[4] Recall that the types of assistance were manipulated to be orthogonal. To examine whether the results change if the types of assistance instead co-occur at levels greater than chance, we also separately analyzed a subset of 12 scenarios that engendered correlations of +0.33 between each pair of types of assistance. The pattern of results was very similar to those from Study 1 as a whole: decision-makers responded positively to all forms of assistance (all $p < 0.05$), but they responded more positively to Information ($\gamma = 0.35$) than to the other forms of assistance (γs = 0.18–0.22). Thus, the results described in Study 1 are not attributable solely to the orthogonality of the types of assistance.

Table 2
Impact of types of assistance and cross-level moderators on decision-makers' reactions to advice (Study 1).

Level of analysis	Type of assistance				
	Recommend For	Recommend Against	Information	Decision Support	Social Support
Within-person					
Main effects	0.25*	0.24*	0.42*	0.24*	0.25*
Cross-level (*moderation*)					
Agreeableness	0.06*	0.04	0.00	0.05*	0.08*
Dependent DM style	0.04	0.02	0.02	0.07*	0.06*
DM anxiety	0.00	0.02	−0.00	0.00	0.02
Gender	0.04	0.01	−0.00	0.06*	0.10*
Scenario content	−0.03	−0.01	0.03	−0.06*	−0.05
Cue wording	−0.10*	−0.07*	−0.06*	−0.10*	−0.10*

Note: Numbers in the table are importance weights (i.e., standardized regression coefficients) for the average person in the sample. DM = decision-making. Gender was coded as 1 = male and 2 = female. Scenario content was coded as 1 = choosing among job offers and 2 = choosing among candidates. Cue wording was coded as 1 = meta-discussion wording and 2 = verbatim wording.
* $p < .05$.

Impact of situational and individual differences on decision-makers' reactions to the types of assistance

We had demonstrated previously (via χ^2 tests) that the strength of the within-person relationships between types of assistance and decision-makers' reactions to advice scenarios varies across decision-makers. The current step assesses whether this between-person variation can be modeled as a function of *specific* between-person moderator variables (individual and situational differences).[5] Cross-level moderation results are displayed in Table 2, whereas Table 3 contains descriptive statistics, reliabilities and inter-correlations for the between-person variables.[6]

Two situational (context) variables were assessed as potential between-person moderators: the type of decision (i.e., deciding which job offer to accept after graduation versus deciding which candidate to select for a student organization), and the manner in which the policy-capturing cues were worded (i.e., verbatim versus meta-discussion). The type of decision had an impact with regard to Decision Support. Specifically, as can be seen in Table 2, when the decision involved choosing among candidates as opposed to choosing among job offers, decision-makers reacted less positively to Decision Support ($\gamma = -0.06$, $p < .05$). With regard to the cue-wording condition, decision-makers reacted less positively to all five types of assistance in the verbatim than the meta-discussion cue-wording condition (γs = −0.10, −0.07, −0.06, −0.10 and −0.10 for Recommend For, Recommend Against, Information, Decision Support and Social Support, respectively, all $p < .05$).

Four individual difference variables were also assessed as potential between-person moderators. We assessed gender as a potential moderator in the case of Social Support, and we assessed the dependency-related individual differences as potential moderators in the case of all five types of assistance. Results are displayed in Table 2. For the sake of completeness, the table also displays analyses involving gender as a moderator vis-à-vis the other four types of assistance.

As expected, gender moderated the relationship between Social Support and decision-makers' reactions to advice scenarios, such that women reacted better than men to Social Support ($\gamma = 0.10$, $p < .05$). Moreover, the exploratory analyses revealed that women also reacted better than men to Decision Support ($\gamma = 0.06$, $p < .05$).

With regard to the dependency-related individual differences, as expected, decision-makers scoring high on agreeableness reacted more positively than those scoring low on agreeableness to Recommend For ($\gamma = 0.06$, $p < .05$), Decision Support ($\gamma = 0.05$, $p < .05$), and Social Support ($\gamma = 0.08$, $p < .05$). Similarly, dependent decision-makers reacted more positively than independent decision-makers to Decision Support ($\gamma = 0.07$, $p < .05$) and Social Support ($\gamma = 0.06$, $p < .05$). Contrary to expectations, however, agreeableness did not moderate the impact of Recommend Against or Information on decision-makers' reactions, dependent decision-making style did not moderate the impact of Recommend For, Recommend Against or Information on decision-makers' reactions, and decision-making anxiety did not moderate the impact of any type of assistance on decision-makers' reactions.

Overall, then, these results indicated that the importance of a given type of assistance did depend to an extent on situational and individual differences, even though the *relative* importance of the advice types remained unchanged.

[5] We also assessed, in exploratory fashion, whether the relationship between a type of assistance (e.g., Recommend For) and decision-makers' reactions was moderated by *another* type of assistance (e.g., Recommend Against). Five of the six statistically significant two-way interactions between pairs of types of assistance were of the "antagonistic" or "interference" form (Cohen, Cohen, West, & Aiken, 2003)—that is, decision-makers' reactions to the presence of two types of assistance simultaneously were slightly *less* positive than the sum of their reactions to each of the two types being present separately. However, in a regression model that included both main effects and two-way interactions, the magnitudes of the standardized interaction coefficients (mean absolute value $\gamma = 0.02$) were trivial compared to those of the standardized main effects (mean $\gamma = 0.31$); thus, the two-way interactions between types of assistance did not appear to be of much "practical" significance. Results were similar in Study 2: three of the four statistically significant two-way interactions in that study were of the "antagonistic" or "interference" form, but the magnitudes of the standardized two-way interaction coefficients (mean absolute value $\gamma = 0.02$) were once again trivial compared to those of the standardized main effects (mean $\gamma = 0.23$).

[6] The cross-level results displayed in Table 2 are based on relatively conservative models in which each between-person variable (e.g., gender) is examined simultaneously as a moderator of the within-person relationship between decision-makers' reactions and each of the five types of assistance. In other words, each model contained five moderators. However, we also attempted to partial out the impact of gender, agreeableness and dependent decision-making style because: (1) Table 3 indicated that women scored significantly higher than men on both agreeableness and dependent decision-making, and (2) women, agreeable decision-makers and dependent decision-makers were all significantly more likely to be included in the first cluster detected in our cluster analysis, whereas men, disagreeable decision-makers and independent decision-makers were all significantly more likely to be included in the second cluster. Consequently, we ran an even more conservative model in which the impact of gender, agreeableness and dependent decision-making style were all examined simultaneously as moderators of the within-person relationship between decision-makers' reactions and each of the five types of assistance. In other words, this particular model contained 15 moderators. The obtained pattern of results remained similar, with the exception that the following effects were now significant at the 0.10 Type I error level rather than at the conventional 0.05 level: gender and agreeableness vis-à-vis Decision Support, and dependent decision-making vis-à-vis Social Support. Overall, results from this model do not suggest that gender, agreeableness and dependent decision-making support are redundant in their moderating effects: each of these variables continued to exhibit meaningful moderating effects even after controlling for the moderating effects of the other two variables.

Table 3
Descriptive statistics and inter-correlations for the between-person variables (Study 1).

Between-subject variable	*M*	*SD*	Correlations (and reliabilities)					
			1	2	3	4	5	6
1. Scenario content	1.48	0.50	–					
2. Cue wording	1.52	0.50	0.04	–				
3. Agreeableness	3.67	0.46	0.07	0.04	*0.77*			
4. Dependent DM style	3.70	0.66	−0.08	0.05	0.07	*0.77*		
5. DM anxiety	3.19	0.86	0.05	0.01	−0.04	0.55*	*0.85*	
6. Gender	1.64	0.48	0.12	−0.12	0.24*	0.14*	0.17*	–

Note: $N = 246$. All correlations are computed at the between-person level. Numbers on the diagonal (in *italics*) are reliabilities (Cronbach's alphas). *M* = mean. *SD* = standard deviation. DM = decision-making. Gender was coded as 1 = male, 2 = female. Scenario content was coded as 1 = choosing among job offers and 2 = choosing among candidates. Cue wording was coded as 1 = meta-discussion wording and 2 = verbatim wording.
* $p < .05$.

Discussion

The present study examined which types of assistance decision-makers preferred to receive from advisors. Results indicated that, although decision-makers regarded all five types of assistance positively, they regarded Information most positively. The present study also assessed the extent to which the types of assistance interact with certain individual and situational differences. From one standpoint, situational differences exerted an effect: the method of cue wording affected reactions to every type of assistance, and the scenario content (i.e., type of decision) affected reactions to two of the five types of assistance. Nonetheless, the *relative* importance of types of assistance did not change across situations. Individual differences also occasionally influenced decision-makers' reactions to certain types of assistance. Here too, however, the relative importance of types of assistance remained constant in all cases.

Limitations and impetus for study 2

A potential limitation in Study 1 concerned the specific manner in which the cues used to represent the types of assistance were worded in the verbatim cue-wording condition. One such issue pertained to the Information cue. As can be seen in Table 1, for the job-choice decision this cue was worded as follows: "Company B has flexible working hours; I know because I have worked there." Could decision-makers have reacted positively not to Information *per se* but rather to the fact that the specific cue used to represent it indicated direct experience on the part of the advisor? Another such issue concerned the Decision Support cue. Could decision-makers have reacted less positively to Decision Support because the specific cue used to represent it was banal? Both these issues are instances of a more general alternative explanation for the results in the verbatim cue-wording condition: namely, that the observed pattern of relative importance was a function not of the types of assistance themselves but of the specific cues used to represent them. However, as can be seen in Table 1, this alternative explanation was not applicable to the meta-discussion cue-wording condition (indeed, it was one of the reasons for creating this condition). The relative importance of the types of assistance was the same in the meta-discussion and verbatim conditions. Therefore, this alternative explanation was not supported.

An altogether different limitation involved the fact that, although we discussed decision-makers' responses to the different types of assistance in terms of accuracy and autonomy motives, we were unable to test these conjectures because we did not measure accuracy and autonomy in Study 1. This issue is addressed in Study 2.

Finally, additional research was needed to evaluate the extent to which the results from Study 1 generalized to decisions involving: (1) non-student-related domains, (2) advisors who were subject-matter experts, and (3) advice that was explicitly solicited. These issues are addressed in Study 2.

Study 2

Study 2 was designed to address the limitations of Study 1. Unlike in Study 1, measures of perceived accuracy and autonomy were included along with every policy-capturing scenario in Study 2. Thus, Study 2 enabled us to test the conjectures outlined in the General Introduction regarding the extent to which each of the five types of assistance was related to accuracy and autonomy.

Study 2 also aided in assessing the generalizability of the results from Study 1 in three ways. First, Study 1 included two decisions relevant to college students. It was therefore important to also study decisions in other domains. In particular, some extant taxonomies of situations (e.g., Saucier, Bel-Bahar, & Fernandez, 2007) differentiate between education-related (i.e., student-related) situations and work-related situations. Thus, Study 2 included three additional situations. Two of these situations were related to the workplace whereas the third was related to financial investments. Second, the advisors in the policy-capturing scenarios of Study 1 were friends of the decision-maker. However, decision-makers' preferences for some or all types of assistance—and, hence, the relative importance of the types of assistance to decision-makers—are likely to vary as a function of advisor expertise or, more generally, credibility (Birnbaum & Stegner, 1979). Thus, Study 2 elicited decision-makers' reactions to expert advisors. Third, the situation (context) may influence the importance, to decision-makers, of accuracy and autonomy—and, hence, of the various types of assistance. It was therefore important to also study decision-makers' reactions in different contexts. For example, in contexts in which maintaining autonomy is less important, decision-makers may react more positively to assistance that takes the form of recommendations—and in particular to Recommend For, which, as discussed previously, has the benefit of being more useful than Recommend Against in terms of maximizing accuracy. One factor that may influence the importance of maintaining decision autonomy is whether the advice is solicited. Autonomy is likely to be less of a concern when advice is explicitly solicited than when it is not (Goldsmith & Fitch, 1997). As a consequence, decision-makers may respond more favorably to advice that takes the form of recommendations, and in particular Recommend For, when the decision-maker explicitly solicits advice than when he or she does not. Thus, unlike Study 1, Study 2 assessed decision-makers' reactions to explicitly solicited advice.

Method

Sample

Undergraduate students ($N = 124$) at a large university in the Mid-Atlantic United States participated as part of a course requirement. A majority (68.5%) of the sample was female, and the mean age was 20.62 ($SD = 4.19$).

Overview of procedure

As in Study 1, the policy-capturing cues were the five types of assistance, and the scenarios were used to vary their presence versus absence in a completely-crossed (full factorial) design. One additional (duplicate) scenario was included as a test–retest reliability check (obtained test–retest reliability = 0.69 for the composite criterion variable), yielding 33 scenarios in total. Participants read each advice scenario and then answered questions indicating not only their reactions to the advice but also their perceptions regarding the potential of that advice to maximize decision accuracy and maintain decision autonomy (see Measures section).

We also investigated certain situational (context) differences. As in Study 1, we used the verbatim and meta-discussion cue wording methods. In addition, as described in the following section, we used three decisions (manipulated between-subjects) in the present study.

Between-subject manipulations

Scenario content. Three decision-making contexts were used.

In the "Store Opening" decision, the decision-maker is a manager responsible for all stores located within a particular state in the Mid-Atlantic region of the United States. The decision-maker has been asked by his or her supervisor—the regional manager responsible for the entire Mid-Atlantic region—to find a location for a new store within the state in question. Having narrowed the choice down to five possible locations, the decision-maker explicitly asks the supervisor for assistance regarding the decision.

In the "labor surplus" decision, the decision-maker is the President and CEO of a large electronics development, manufacturing and distribution company. Based on a workforce analysis that the decision-maker had requested him or her to prepare, the Vice President of Human Resources has informed the decision-maker that the company will soon face a labor surplus in its manufacturing division. The decision-maker is therefore contemplating five possible ways to address the labor surplus (hiring freezes, layoffs, voluntary early retirements, voluntary part-time work schedules, and internal transfers to other divisions), and explicitly asks the Vice President of Human Resources for assistance regarding the decision.

In the "Investment" decision, the decision-maker has just inherited $13,500 from a distant relative. The decision-maker is contemplating five possible ways to invest the money (a savings account, a money market deposit account, a certificate of deposit, treasury securities, and inflation-indexed savings bonds), and goes to a financial advisor to explicitly solicit assistance regarding the decision. The expertise differential between advisor and decision-maker is arguably largest in the Investment decision.

Cue wording. As in Study 1, both "verbatim" and "meta-discussion" forms of cue wording were used. Specifically, the Store Opening decision used the verbatim wording whereas the Labor Surplus and the Investment decisions used the meta-discussion wording. Prior to the policy-capturing scenarios in both the Labor Surplus and Investment decisions, formal definitions were provided for the various options among which the decision-maker needed to choose (e.g., inflation-indexed savings bonds), and, as in the meta-discussion conditions in Study 1, several examples were provided for each type of assistance that the advisor might offer.

Measures

Criterion variables. Given that the four individual criterion questions in Study 1 were highly correlated, as well as the fact that a re-analysis of the Study 1 data using each question individually yielded results similar to those obtained via the composite criterion variable, only two of the previous four questions were used in Study 2. These questions, which were asked after every policy-capturing scenario, were: (1) "How satisfied would you be with this interaction?" and (2) "How useful would this interaction be for you?" As in Study 1, a 1 ("Not at All") to 5 ("Extremely") response scale was provided. The two questions were once again highly inter-correlated ($r = .74$), and so, as in Study 1, we created a composite criterion defined as decision-makers' overall reactions to the advice interaction.

Accuracy and autonomy. Accuracy and autonomy were measured after every policy-capturing scenario. The question measuring accuracy was: "How likely would this interaction be to enable you to make the best (i.e., most accurate) possible decision?" The question measuring autonomy was: "How likely would this interaction be to help you maintain the freedom (i.e., autonomy) to make the decision the way you see fit?" For both questions, a 1 ("Not at All") to 5 ("Extremely") response scale was provided.

Results

Justification for a multilevel approach

Of the overall variance in decision-makers' reactions, 13.1% was between-persons variance with the remainder (86.9%) being within-person variance. This amount of between-person variance was significantly greater than zero, χ^2 (123) = 717.35, $p < .05$. As in Study 1, the statistically significant amount of between-person variance justifies a multilevel approach.

Decision-makers' reactions to the types of assistance

To assess decision-makers' preferences for various types of assistance, we regressed decision-makers' reactions to each advice scenario on variables indicating the presence versus absence of the types of assistance on each scenario. As can be seen in Table 4, decision-makers responded positively to the presence of all types of assistance, but more so to some types of assistance than others. Specifically, the positivity of decision-makers' responses decreased in the following order: Information, Recommend For, Decision Support, Recommend Against, and Social Support (γs = 0.31, 0.28, 0.26, 0.19 and 0.10, respectively, all $p < .05$). Contrasts revealed that Information was viewed significantly more positively than the set of the other four types of assistance (χ^2 (1 *df*) = 27.69, $p < .05$), but that it was not viewed significantly more positively than Recommend For (χ^2 (1 *df*) = 1.07, $p > .05$). Thus, as expected, decision-makers also responded very positively to Recommend For in Study 2 (unlike in Study 1).

The model with the five types of assistance as predictors explained a median of 61.9% of the variance (interquartile range = 32.8–74.1%) in advice reactions across decision-makers. Similarly, the median level of "cognitive control" was 0.79 (interquartile range = 0.57–0.86) across decision-makers.

Yet, supporting the previous finding that a significant percentage of the variance in decision-makers' reactions to advice was explainable by between-person factors, the model also suggested that the relationships between types of assistance and decision-makers' reactions to scenarios varied significantly across decision-makers (χ^2s (123 *df*) = 650.86, 380.10, 524.24, 440.42 and 265.99 for Recommend For, Recommend Against, Information, Decision Support and Social Support respectively; all *p*s < .05). As in Study 1, we assessed this between-person heterogeneity via both cluster analysis and cross-level moderation involving between-person variables (i.e., individual and/or situational differences).

Cluster analysis of decision-makers' decision policies

To assess the possibility of distinct clusters of decision-makers, we once again used the TwoStep cluster analysis procedure. Re-

Table 4
Impact of types of assistance and cross-level moderators on decision-makers' reactions to advice (Study 2).

Level of analysis	Types of assistance				
	Recommend For	Recommend Against	Information	Decision Support	Social Support
Within-person					
Main effects	0.28*	0.19*	0.31*	0.26*	0.10*
Cross-level (*moderation*)					
Gender	0.04	0.03	0.03	0.08*	0.04
Cue wording	−0.13*	−0.14*	−0.02	−0.01	−0.14*
Store Opening (versus Labor Surplus)	−0.06	−0.08*	0.01	0.00	−0.15*
Investment (versus Labor Surplus)	0.16*	0.12*	0.07	0.03	−0.01

Note: Numbers in the table are importance weights (i.e., standardized regression coefficients) for the average person in the sample. Gender was coded as 1 = male and 2 = female. Cue wording was coded as 1 = meta-discussion wording and 2 = verbatim wording. Dummy variables corresponding to the Store Opening and Investment decisions were assessed simultaneously in the regression model, with the Labor Surplus decision being the baseline (Cohen et al., 2003).
* $p < .05$.

sults indicated a two-cluster solution. In the first cluster ($n = 67$), the mean standardized regression coefficients (across decision-makers) were 0.42 for Recommend For, 0.41 for Information, 0.33 for Decision Support, 0.31 for Recommend Against, and 0.14 for Social Support. In the second cluster ($n = 57$), the mean standardized regression coefficients were 0.17 for Information, 0.16 for Decision Support, 0.10 for Recommend For, 0.05 for Social Support, and 0.03 for Recommend Against. Overall, then, three conclusions can be drawn from the cluster analysis: (1) in both clusters, Information was considered important, (2) Recommend For was also considered important, although its relative importance differed across clusters to a greater extent than that of Information (the same was true of Decision Support, albeit to a lesser extent), and (3) the importance weights for all five types of assistance were lower in the second cluster than in the first cluster.

Impact of situational and individual differences on decision-makers' reactions to the types of assistance

Two situational variables were assessed as potential between-person moderators of the within-person relationships between types of assistance and decision-makers' reactions to advice: the manner in which the policy-capturing cues were worded (i.e., the verbatim versus meta-discussion forms of cue wording) and the type of decision (Store Opening, Investment or Labor Surplus). Cross-level moderation results are displayed in Table 4, whereas Table 5 contains descriptive statistics and inter-correlations for the between-subject variables.

With regard to the cue-wording condition, as in Study 1, decision-makers reacted less positively to all five types of assistance in the verbatim than the meta-discussion cue-wording condition (γs = −0.13, −0.14, −0.02, −0.01 and −0.14 for Recommend For, Recommend Against, Information, Decision Support and Social Support, respectively), though in the present study the differences were not significant (i.e., $p > .05$) for Information and Decision Support.

The impact of the type of decision was studied via two dummy variables, the simultaneous use of which served to distinguish the Store Opening and Investment decisions, respectively, from the Labor Surplus decision (which was used as the baseline in the regression model; Cohen et al., 2003). Relative to the Labor Surplus decision, results indicated that decision-makers reacted significantly less positively to Recommend Against and Social Support in the Store Opening decision (γs = −0.08 and −0.15, respectively; both $p < .05$) but significantly more positively to Recommend For and Recommend Against in the Investment decision (γs = 0.16 and 0.12, respectively; both $p < .05$).

The individual difference of gender was also assessed as a potential between-person moderator in the case of Social Support. Results are once again displayed in Table 4. For the sake of completeness, the table also displays analyses involving gender as a moderator vis-à-vis the other four assistance types. As in Study 1, women reacted better than men to Social Support; however, the gender difference was not statistically significant in the present study ($\gamma = 0.04$, $p > .05$). As in Study 1, however, the exploratory analyses revealed that women reacted significantly better than men to Decision Support ($\gamma = 0.08$, $p < .05$).

Overall, then, situational features (and, to a lesser extent, gender) exerted an impact on decision-makers' responses to types of assistance. Although both Information and Recommend For were responded to quite positively overall, the cross-level moderation analysis as well as the cluster analysis demonstrate that responses to the latter were more variable across situations.

Accuracy and autonomy

Decision-makers' perceptions regarding the extent to which each type of assistance was related to accuracy and autonomy were determined by regressing ratings of accuracy and autonomy

Table 5
Descriptive statistics and inter-correlations for the between-person variables (Study 2).

Between-subject variable	*M*	*SD*	Correlations				
			1	2	3	4	5
1. Cue wording	1.37	0.49	–				
2. Store Opening decision	0.37	0.49	1.00*	–			
3. Investment decision	0.27	0.44	−0.46*	−0.46*	–		
4. Labor Surplus decision	0.36	0.48	−0.58*	−0.58*	−0.45*	–	
5. Gender	1.69	0.47	−0.02	−0.02	0.05	−0.03	–

Note: $N = 124$. All correlations are computed at the between-person level. Reliabilities (Cronbach's alphas) are not provided on the diagonal because all variables were manipulated rather than measured (except gender, which is assumed to be measured with perfect reliability). *M* = mean. *SD* = standard deviation. Gender was coded as 1 = male, 2 = female. Cue wording was coded as 1 = meta-discussion wording and 2 = verbatim wording. The Store Opening, Investment and Labor Surplus decisions are represented by dummy variables.
* $p < .05$.

on the five types of assistance. Results are displayed in Table 6. The extent to which decision-makers viewed each type of assistance as being important in terms of maximizing decision accuracy decreased in the following order: Information, Decision Support, Recommend For, Recommend Against, and Social Support. Moreover, the extent to which decision-makers viewed each type of assistance as being important in terms of maintaining decision autonomy decreased in the following order: Information, Social Support and Decision Support (tied), Recommend Against, and Recommend For. It is noteworthy that, even though advice in the present study was explicitly solicited, participants viewed Recommend For somewhat negatively vis-à-vis the maintenance of decision autonomy ($\gamma = -0.09$, $p < .05$). Overall, these results were quite similar to our expectations regarding the relative importance of the types of assistance in terms of accuracy and autonomy (see General Introduction section).

However, Study 2 was intended to downplay the role of autonomy (by making the advice explicitly solicited). Thus, as expected, although decision-makers' overall reactions to the advice were strongly related within-persons to accuracy ($r = 0.77$, $p < .05$), they were only weakly positively related to autonomy ($r = 0.15$, $p < .05$). Accuracy and autonomy were themselves only weakly related within-persons ($r = 0.17$, $p < .05$).

Discussion

Study 2 was designed to differ from Study 1 in several ways. Perhaps the most important of these was the attempt to reduce the importance of decision autonomy in Study 2, and thereby to increase the importance of Recommend For, by making the advice explicitly solicited. As expected, results indicated that the types of assistance perceived by decision-makers to aid in the maximization of decision accuracy were viewed positively in Study 2, regardless of whether they were also perceived to aid in the maintenance of decision autonomy. Thus, despite the fact that decision-makers associated Information with relatively high autonomy and Recommend For with relatively low autonomy, they viewed both Information and Recommend For very positively in Study 2 because they viewed autonomy as rather unimportant in this particular context and because they associated both types of assistance with relatively high accuracy.

Even so, the data from both the cluster analysis and the cross-level moderation analysis indicated that, within Study 2 itself, the type of decision and the form of cue wording influenced the extent to which decision-makers responded positively to Recommend For. Specifically, decision-makers responded more positively to Recommend For in the Investment decision (where the expertise differential between advisors and decision-makers was arguably the largest) than in the other two decisions. They also responded more positively to Recommend For when the cue wording was of the meta-discussion form than when it was of the verbatim form. In contrast, decision-makers responded very positively to Information across all three decisions and across both forms of cue wording.

Table 6
Impact of types of assistance on decision-makers' perceptions of accuracy and autonomy (Study 2).

Type of assistance	Accuracy	Autonomy
Recommend For	0.21*	−0.09*
Recommend Against	0.17*	−0.03
Information	0.28*	0.07*
Decision Support	0.24*	0.06*
Social Support	0.09*	0.06*

Note: Numbers in the table are importance weights (i.e., standardized regression coefficients) for the average person in the sample.
* $p < .05$.

Thus, certain aspects—but not all aspects—of the findings from Study 1 generalized to Study 2. In both studies, decision-makers responded very positively (and, usually, most positively) to Information. Similarly, in both studies, decision-makers responded less positively to Social Support and Recommend Against. Yet, although Recommend For was not among the types of assistance viewed most positively in Study 1, it was the second most positively viewed type of assistance overall in Study 2—and the most positively viewed type of assistance for one cluster of decision-makers in Study 2. These results suggest that the extent to which decision-makers react positively to Recommend For may be highly contextually dependent.

General discussion

The current paper contributed to the decision-making literature on advice-giving and advice-taking in several ways. First, it introduced decision-making researchers to several types of advice (as well as another type of interpersonal assistance) beyond the type—namely, Recommend For—typically studied in the decision-making literature. Second, it introduced the idea that motives other than maximizing accuracy may come into play in advice giving and taking. Third, it assessed which types of assistance were more versus less preferred by decision-makers—and it did so using an approach, policy-capturing, that reduces concerns about social desirability and lack of self-insight (Karren & Barringer, 2002). Fourth, the present research assessed whether decision-makers' reactions to types of assistance vary as a function of gender and the dependency-related individual differences. Fifth, the present research began to explore issues concerning the generalizability of the findings across situations by assessing the extent to which decision-makers' reactions to types of assistance varied as a function of contextual factors such as: (1) the type of decision (using two student/education-related decisions in Study 1 as well as two work-related decisions and one investment-related decision in Study 2), (2) advisor expertise/credibility (with advisors being friends of the decision-maker in Study 1 and subject-matter experts in Study 2), (3) whether the advice was explicitly solicited (it was in Study 2, but not in Study 1), and (4) the manner in which the interpersonal assistance cues were worded (i.e., the verbatim versus meta-discussion forms of wording used in both studies).

The findings suggest that although types of assistance such as recommending against alternatives and providing Social Support are of some use to decision-makers (and therefore should not be completely abjured by advisors), they do not appear to be decision-makers' most preferred types of assistance. Instead, across the situational and dispositional variables we examined, decision-makers appeared to want their advisors to provide information about the alternatives. Moreover, in certain situations (e.g., when autonomy is less important, when the advisor is an expert or otherwise credible), decision-makers appear to want their advisors to prescribe (i.e., Recommend For) alternatives. These results suggest that advisors should provide decision-makers with different combinations of types of assistance in different situations, but also that information about alternatives should typically be among the types of assistance they provide.

Limitations, future research, and implications

Notwithstanding the contributions listed above, the present research had certain limitations. First, some researchers have argued that policy-capturing is a limited technique because its scenarios represent "paper people" (Gorman, Clover, & Doherty, 1978)—in other words, that participants' responses to the impoverished stimuli presented in policy-capturing studies should not always

be expected to generalize to responses in a real-world situation. Future research could therefore create a specific, "rich" situation in order to replicate the present findings. To this end, detailed retrospective descriptions of recent instances in which participants provided or received assistance on an actual decision could be elicited and subsequently content-coded for the types of assistance as well as for the decision-makers' motives vis-à-vis the assistance.

Alternatively, researchers could manipulate situational (contextual) factors and measure individual differences when participants are asked to make actual decisions, perhaps on a computerized decision task similar to the one used by Schrah et al. (2006). Here, dependent variables could involve *whether* participants choose to request assistance, and, if they do, *which* types of assistance they choose to request and *when* (i.e., at what stage) during the decision process they choose to do so. For example, if participants request both Information and Recommend For, one possibility is that Information will be requested first in order to reach a preliminary decision, and that Recommend For will be requested later in order to help assess the quality of that preliminary decision (cf. Schrah et al., 2006). Another possibility is that Recommend For will in fact be requested first, and that Information will be requested later, as an explanation or justification for the recommendation.

Second, the present research was limited by the scarcity of previous research on situational factors likely to influence the importance, to decision-makers, of accuracy and autonomy—and hence of the various types of assistance. Although we focused on whether the assistance was explicitly solicited, several additional factors may be relevant to autonomy. Moreover, several factors, such as the importance of the decision, may be relevant to accuracy. Future research could therefore simultaneously assess the impact of multiple situational factors on decision-makers' perceptions of accuracy and autonomy.

Third, decision-makers' receptiveness to assistance is likely to depend on motives beyond maximizing accuracy and maintaining autonomy. Future research could therefore create a taxonomy of decision-maker motives vis-à-vis their receptiveness to assistance. For example, additional decision-maker motives could include maintaining a good relationship with the advisor (Phillips, 1999), diffusing responsibility for the decision (Yaniv, 2004), and minimizing effort on the decision-maker's own part (Schrah et al., 2006). We believe that researchers' understanding of the process by which decisions are made would benefit greatly from a program of research that delineates a relatively comprehensive list of decision-makers' motives and then goes on to assess the situational and dispositional factors that affect the strength of these motives.

Future research could also determine whether the manner in which a given type of assistance is evaluated depends on whether: (1) it coincides with the decision-maker's own initial opinion (e.g., a decision-maker's evaluation of an advisor's recommendation may depend on whether the decision-maker already preferred the recommended alternative), and (2) other types of concordant assistance are directed at the *same* alternative (e.g., a recommendation favoring a particular alternative may be more palatable if accompanied by positive information regarding that same alternative).

Addressing these issues would shed further light on decision-makers' preferences for various types of advice (or assistance). The current findings nonetheless have important implications not only for researchers who study advice but also for individuals who are actually giving advice to others. Specifically, our findings suggest that recommendations in favor of alternatives, though important, are not the only important type of advice. Information about alternatives is also very important to decision-makers, and in many contexts may be the most important type of advice. Thus, individuals who are advising decision-makers should at the very least be careful to provide information along with their recommendations. Moreover, though the decision-making literature has not systematically studied the provision of information by advisors, our results strongly suggest that it should.

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