Please Note: Use Articles Attached

Discussion 4:

Prior to beginning work on this discussion, please read the following required articles:

- "Relations Between Inductive Reasoning and Deductive Reasoning"
- "The Effect of the Environment (Real and Virtual) and The Personality on the Speed of Decision Making"
- "Decision-Making Theories and Models: A Discussion of Rational and Psychological Decision-Making Theories and Models: The Search for a Cultural-Ethical Decision-Making Model"
- "Seven Basic Steps to Solving Ethical Dilemmas in Special Education: A Decision-Making Framework"
- "Looking for a Psychology for the Inner Rational Agent"

Play the expert in the following scenario and apply ethical principles and professional standards of decision-making to your rationale and actions:

- You are a counseling psychologist in a state prison. You have been counseling a new inmate, and he confided in you that one of the other inmates has indicated he is considering suicide. He does not divulge the name of the other inmate and refuses to talk any further about the issue. Consider the following steps in your decision-making process:
  - Define the problem.
  - Explore the alternatives.
  - Consider the consequences.
  - Identify ethical considerations.
  - Determine how you would reduce bias in your decision-making process.
  - Explain your decision.

Using appropriate citations and references, explain how the empirical research and theoretical models presented in the assigned articles suggest the importance of applying decision-making strategies in one's own practice. Support your argument with empirical research.

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Relations Between Inductive Reasoning and Deductive Reasoning

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One of the most important open questions in reasoning research is how inductive reasoning and deductive reasoning are related. In an effort to address this question, we applied methods and concepts from memory research. We used 2 experiments to examine the effects of logical validity and premise–conclusion similarity on evaluation of arguments. Experiment 1 showed 2 dissociations: For a common set of arguments, deduction judgments were more affected by validity, and induction judgments were more affected by similarity. Moreover, Experiment 2 showed that fast deduction judgments were like induction judgments—in terms of being more influenced by similarity and less influenced by validity, compared with slow deduction judgments. These novel results pose challenges for a 1-process account of reasoning and are interpreted in terms of a 2-process account of reasoning, which was implemented as a multidimensional signal detection model and applied to receiver operating characteristic data.

Keywords: reasoning, similarity, mathematical modeling

An important open question in reasoning research concerns the relation between induction and deduction. Typically, individual studies of reasoning have focused on only one task, rather than examining how the two are connected (Heit, 2007). To make progress on this issue, we have borrowed concepts and methods from memory research, which has faced similar questions about the number of memory processes and how to model them. For example, a lively debate exists about whether recognition judgments can be accounted for by a single familiarity process or whether two processes are needed: heuristic familiarity and a more accurate recollective process (e.g., Rotello, Macmillan, & Reeder, 2004; Wixted & Stretch, 2004). That issue is often examined in the remember–know paradigm (Tulving, 1985), in which subjects make a recognition judgment then state whether they just know they have seen the item or actually remember it. Under the two-process view, "know" judgments depend more on familiarity, whereas "remember" judgments depend more on recollection. Under the one-process view, "remember" judgments reflect a stricter response criterion than "know."

Here, we treat the relation between induction and deduction as a psychological question rather than as a question of how to demarcate inductive problems versus deductive problems (e.g., Skyrms, 2000). Our empirical strategy is to ask people to judge either inductive strength or deductive validity for a common set of arguments (Rips, 2001). This technique can highlight similarities or differences between induction and deduction that are not confounded by the use of different materials (Heit, 2007). It also allows us to compare two major classes of theories of reasoning. In broad terms, one-process accounts suggest that people apply the same reasoning abilities to problems of induction and deduction rather than drawing on different mechanisms for the two tasks (Harman, 1999). If the same mechanisms apply to induction and deduction, one possible distinction between the two tasks is that deduction judgments are like "remember" responses in requiring a stricter criterion for a positive response, because greater certainty is necessary (Rips, 2001; Skyrms, 2000).

According to two-process accounts (Evans, 2008; Stanovich, 2009), both heuristic and analytic processes contribute to reasoning, with each process potentially assessing an argument as strong or weak. We propose that induction judgments would be particularly influenced by quick heuristic processes that tap into associative information about context and similarity that does not necessarily make an argument logically valid. Deduction judgments would be more heavily influenced by slower analytic processes that encompass more deliberative, and typically more accurate, reasoning. Although two-process accounts have provided an explanatory framework for many results (e.g., content effects, individual differences), they typically have not been implemented and fitted to data.

In an effort to directly contrast one- and two-process accounts of reasoning, Rips (2001) reported response reversals within pairs of arguments: One argument was more likely to be judged inductively strong, and the other was more likely to be judged deductively valid. He concluded that this result was evidence against a one-process account, which predicts the same order of arguments in both conditions. Heit and Rotello (2005) extended Rips's study to examine subjects' sensitivity to valid versus invalid arguments. If deduction and induction use the same information, differing only in terms of response criterion, then sensitivity (d'), reflecting the difference in responses to valid and invalid arguments, should be

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the same for deduction and induction. Instead, we found a higher d' for deduction (1.69) than for induction (0.86).

The present study comprises novel tests of a recently proposed two-process model of reasoning (Rotello & Heit, 2009), assuming that induction and deduction judgments both tap into underlying heuristic and analytic processes but in different proportions. We derived this model from results showing that deduction judgments were more sensitive to validity, that induction judgments were more sensitive to length of argument, and that reducing fluency (using a hard-to-read font) increased the role of analytic processing in induction judgments, making them more sensitive to validity. Here, for the first time, we compare the effects of similarity on induction and deduction; we also compare speeded deduction judgments with unspeeded deduction judgments. Similarity is a central construct in some theories of inductive reasoning (Osherson, Smith, Wilkie, Lopez, & Shafir, 1990; Sloman, 1993) and is a key predictor of inductive strength judgments (Heit & Feeney, 2005), so it is valuable to compare the role of similarity in induction versus deduction. Furthermore, generally speaking, speeded reasoning tasks seem to have great potential to help study the cognitive processing underlying reasoning, particularly when multiple processes may be involved. Surprisingly, there have been relatively few such studies (e.g., Evans & Curtis-Holmes, 2005; Shafto, Coley, & Baldwin, 2007).

To anticipate, in Experiment 1, we focused on premise–conclusion similarity (invalid arguments seem stronger when there is greater similarity between categories in the premise and the conclusion; for a review, see Hayes, Heit, & Swendsen, in press). We found two dissociations: Similarity had more impact on induction, which depended more on heuristic processing, and logical validity had more impact on deduction, which depended more on analytic processing. In Experiment 2, we found that fast deduction judgments were like induction judgments: They showed a greater influence of similarity and lesser influence of validity, suggesting that analytic processing was attenuated in speeded deduction. These results were all accounted for by an implemented two-process model but could not be explained by a one-process model.

Experiment 1

Method

Subjects. Sixty-six students from the University of California, Merced, were paid to participate. They were randomly assigned to one of two conditions: induction (n = 32) or deduction (n = 34).

Stimuli. There were 142 questions, comprising arguments about the following kinds of mammals: bears, cats, cows, dogs, goats, horses, lions, mice, rabbits, and sheep. An example (invalid) argument is listed below.

Horses have Property X

Cows have Property X

Subjects were instructed to treat Property X as a novel biological property. Stimuli were created as follows. The 10 kinds of mammals, plus the mammal category itself, composed a set of 11 categories. These 11 categories were rotated through the premise and conclusion positions to yield 121 arguments. Of these, 21 were valid: 10 arguments were based on category inclusion with mammal as the premise category, such as the example listed below.

Mammals have Property X

Cows have Property X

Furthermore, 11 arguments had identical premise and conclusion categories, such as the example listed below.

Cows have Property X

Cows have Property X

To increase the proportion of valid arguments, we presented the valid items twice so that there were 42 valid arguments (29.6%) out of 142 questions.[1] Note that for invalid arguments, the similarity between the premise and conclusion categories varied widely.[2]

Procedure. Subjects were first given instructions on the definition of strong or valid arguments. Following Rips (2001), subjects in the induction condition were told that strong arguments were those for which "Assuming the information above the line is true, this makes the sentence below the line *plausible*." Likewise, the deduction instructions gave a brief definition of a valid argument: "Assuming the information above the line is true, this *necessarily* makes the sentence below the line true."

The 142 arguments were presented one at a time, on a computer, in a different random order for each subject. In the induction condition, subjects pressed one of two keys to indicate "strong" or "not strong." In the deduction condition, subjects indicated "valid" or "not valid." Each binary decision was followed with a 1–5 confidence rating; higher numbers indicated greater confidence.

Results and Discussion

Three subjects from the induction condition were excluded because they gave the same response for virtually every question, or they made more "strong" responses to invalid than to valid arguments.

We first assessed the proportion of positive ("strong" or "valid") responses to valid and invalid arguments (see Table 1). For the deduction condition, the average proportions were 0.94 and 0.04, respectively. For the induction condition, the average proportions were 0.95 and 0.12, respectively. Subjects were more likely to reject invalid arguments in the deduction condition than in the induction condition, Welch's unequal-variance $t'(32.1) = 2.04$, $p < .05$, suggesting greater influence of validity for deduction. As

[1] Strictly speaking, inclusion arguments are enthymemes, because they rely on a hidden premise, such as that all cows are mammals (Calvillo & Revlin, 2005). For simplicity, we refer to both the identity and inclusion arguments as valid, although we report separate analyses for these two kinds of items.

[2] Similarity was derived from a multidimensional scaling solution for mammal categories (Rips, 1975). Euclidean distance was physically measured from the published scaling solution and was transformed to similarity using a negative exponential function (cf. Shepard, 1987).

Table 1
Response Proportions From Experiments 1 and 2

Experiment	Condition	Positive response rate to valid arguments	Positive response rates to invalid arguments	
			Low similarity	High similarity
1	Induction	0.95	0.08	0.14
	Deduction	0.94	0.04	0.05
2	Fast	0.83	0.16	0.24
	Slow	0.96	0.09	0.11

in previous experiments (Heit & Rotello, 2005, 2008; Rotello & Heit, 2009), d' was greater for deduction (3.31) than for induction (2.82),[3] which also suggests that deduction judgments were more affected by validity. However, use of d' requires that the underlying distributions are equal-variance Gaussian (Macmillan & Creelman, 2005; Rotello, Masson, & Verde, 2008), which has not been observed in reasoning tasks (Heit & Rotello, 2005; Rotello & Heit, 2009). Apparently simpler measures, such as the difference between acceptance rates for valid and invalid problems, also entail assumptions that are not supported by reasoning data (Dube, Rotello, & Heit, 2009).

A better approach is to consider the area under the receiver operating characteristic (ROC) curves, which plot positive responses to valid items against positive responses to invalid items, as a function of confidence. The left-most point on the ROC reflects the highest confidence positive judgments; points to the right include responses of decreasing confidence. When correct responses are more frequent, the ROC curve falls closer to the upper left corner, and the area under the curve is greater, reflecting greater sensitivity to the validity of the argument. Equal-variance Gaussian evidence distributions lead to symmetrically curved ROCs, which would justify the use of d'; distributions that justify the use of a difference between correct and error response rates lead to linear ROCs.

Figure 1 shows the ROCs for both conditions, which are curved and asymmetric. Thus, neither d' nor the difference between correct responses and errors accurately summarizes performance. Therefore, we instead turned to the area under the ROC, which was greater overall for deduction than for induction. This difference reached the level of statistical significance for identity problems in deduction versus induction ($z = 2.84, p < .01$; see Metz, 1998) but not so for inclusion problems ($z = 0.71, p > .4$), perhaps because subjects did not consistently treat these as valid (see Footnote 3).

The data in Table 1 suggest greater sensitivity to similarity for induction than for deduction, as predicted by a two-process account. (We assigned arguments to the low-similarity set or to high-similarity set on the basis of a median split, using the measures described in Footnote 2.) We calculated, for each subject, the difference in the positive response rate to low- and to high-similarity invalid arguments. As expected, subjects' difference scores were larger in the induction condition than in the deduction condition, $t(61) = 2.53$, $p < .02$, indicating that responses to invalid arguments were more influenced by similarity in induction than in deduction.

To investigate the effects of similarity at a finer level, we performed a multiple regression analysis predicting the proportion of positive responses for the 121 unique arguments. The data were pooled across the deduction and induction conditions, yielding 242 data points to be predicted. The two main predictors were validity (coded as 0 or 1) and the similarity of the animal categories in the premise and conclusion. We added the following predictors: Validity × Similarity, Condition, Condition × Validity, Condition × Similarity, and Condition × Validity × Similarity. The overall R^2 was .979, $F(7, 234) = 763.5, p < .001$. Only three predictors were significantly different from zero. There were positive main effects of validity ($\beta = .93, p < .001$) and similarity ($\beta = .06, p < .01$). Crucially, there was a Condition × Similarity interaction ($\beta = .21$, $p < .001$), indicating more impact of similarity in the induction condition.[4]

Because we focused on similarity effects by systematically varying premise–conclusion similarity in this experiment, it is perhaps unsurprising that the most robust results were differences in the role of similarity for induction versus deduction. We also observed differences in sensitivity to validity, for example, subjects were significantly more likely to reject invalid arguments in the deduction condition than in the induction condition. These results add to previous findings of greater sensitivity to validity for deduction (Heit & Rotello, 2005, 2008; Rotello & Heit, 2009). We acknowledge that that limited range of the arguments in the present experiment, for example, each had just one premise, may have reduced the opportunity to find differences in sensitivity to validity (for related comments on using a wider range of arguments, see Oaksford & Hahn, 2007).

Modeling. Rotello and Heit (2009) found that subjects given induction instructions were heavily influenced by argument length (they were more likely to judge invalid arguments as strong when they included more premises); subjects given deduction instructions on the same arguments did not show that trend. We successfully fitted data from those three experiments using a two-dimensional signal detection model (Macmillan & Creelman, 2005) in which valid and invalid arguments differ along dimensions of consistency with prior knowledge (*heuristic evidence*) and apparent logical correctness (*analytic evidence*). Differences between the induction and deduction responses were explained by differential weighting of the two dimensions, which was reflected in the slope of the decision bound that divides "valid" from "invalid" or "strong" from "not strong" arguments. We were unable to fit the ROCs with a one-dimensional model in which the deduction and induction responses differed only in their response criterion, because the one-dimensional model incorrectly predicted the same effect of argument length on both induction and deduction, and because it incorrectly predicted that accuracy would not differ between tasks.

[3] As in previous studies (e.g., Sloman, 1998), there was a higher proportion of positive responses to identity arguments (0.97 for deduction and 0.98 for induction) than to inclusion arguments (0.90 for deduction and 0.91 for induction). Identity arguments had a greater d' for deduction (3.64) than for induction (3.33). Inclusion arguments also had a greater d' for deduction (3.04) than for induction (2.53).

[4] Because more extreme probabilities have lower variance than probabilities near the middle of the range, we have also performed these regressions using the arcsine transformation recommended by Cohen, Cohen, Aiken, and West (2002). For both experiments, these regressions lead to the same conclusions.

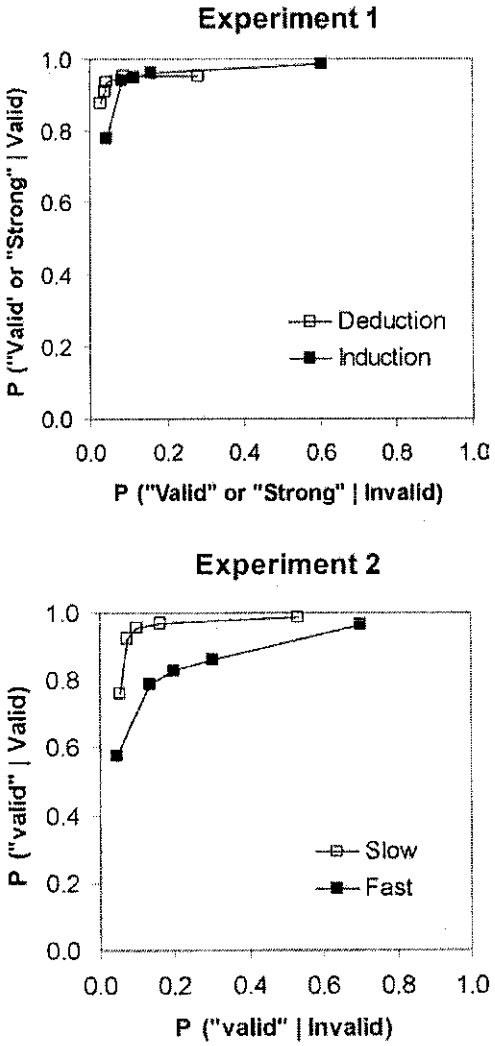

Figure 1. Receiver operating characteristic curves for Experiments 1 and 2.

A one-dimensional model cannot account for the present data, for analogous reasons: Induction and deduction resulted in different accuracy levels, and the effect of similarity was greater for induction than for deduction. Therefore, we focused on the two-dimensional model that Rotello and Heit (2009) found to be successful, assuming that consistency with prior knowledge could reflect the similarity of the premise category to the conclusion category (see Figure 2). Using Monte Carlo simulations, we sampled 1,000 trials each from distributions of high- and low-similarity invalid arguments (these were allowed to differ only in mean similarity) and from distributions of valid identity and inclusion arguments (these were allowed to differ in their mean values on both dimensions). Predicted hit and false-alarm rates were calculated from the proportion of sampled strengths that fell above the induction or deduction decision bound; simulated confidence level was manipulated by varying the y-intercepts of the decision bounds, generating ROCs. The parameters of the model (e.g., means, variances, and covariances of the distributions on each axis, decision bound slopes) were varied over a wide range, and a good fit was identified by considering both the mean squared error (difference between observed and predicted response rates) and the area under the ROC, although the results should be considered illustrative rather than detailed quantitative fits. The resulting parameters are shown in Table 2.

Replicating Rotello and Heit's (2009) conclusions, the sole difference between induction and deduction in this model is the slope of the decision bound. Put differently, the modeling indicates that the only difference between induction and deduction is in terms of the relative weight that each task assigns to information from the two dimensions. Deduction weighs the prior knowledge dimension less heavily than induction, but both types of information contribute to the judgments in each task. The simulated ROCs for the high- and low-similarity conditions are in Figure 3; Figure 4 shows the ROCs for the identity and inclusion arguments. Both figures show that the model fits the data well: The simulated ROCs fall within the 95% confidence intervals for the observed data. One key result is that when similarity is higher, the ROCs shift to the right for induction, reflecting more positive responses to invalid arguments but much less so for deduction (see Figure 3). Also, the predicted identity ROC falls higher in the space in the deduction condition than the induction condition (see Figure 4), because inclusion problems have a lower mean value on the validity dimension and that dimension is weighted more heavily in deduction.

To summarize, Experiment 1 shows that similarity has a greater effect on induction, and validity has a greater effect on deduction. These novel results are naturally accommodated by a two-process account of reasoning, but it is unclear how a one-process account would explain the results.

Experiment 2

Experiment 1 suggests that deduction judgments reflect a relatively greater influence of analytic processes than do induction

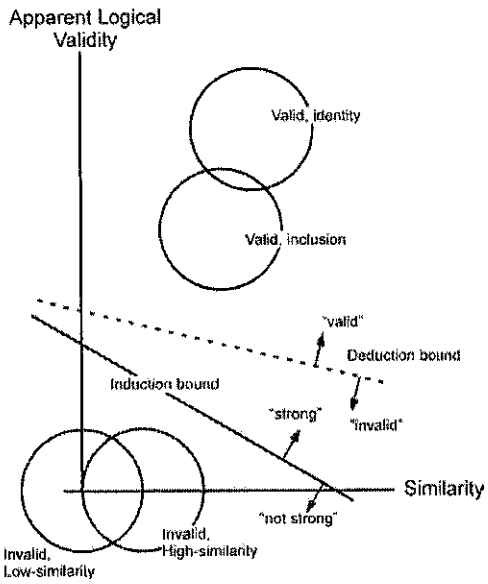

Figure 2. Schematic two-dimensional model for both induction and deduction. The circles show distributions of arguments in argument space, reflecting two underlying dimensions of argument strength. The dashed and solid lines show decision boundaries for deduction and induction, respectively.

Table 2
Parameter Values for the Two-Dimensional Model as Applied to Each Experiment

Parameter	Experiment 1	Experiment 2
d_x = mean of valid high-similarity arguments on x-axis	1.0	1.0
Variance of d_x	0.9	1.2
d_y = mean of valid high-similarity arguments on y-axis	3.7	3.5
Variance of d_y	1.5	1.6
Location of invalid high-similarity arguments on x-axis	1.0	0.2
Induction (or fast condition) slope	−0.5	−2.0
Deduction (or slow condition) slope	−0.1	−0.2
Change in d_x for inclusion arguments	0	−0.5
Change in d_y for inclusion arguments	−1.0	−0.8
Covariance of x and y for valid arguments	0	0
Covariance of x and y for invalid arguments	0	0

Note. The distribution of invalid low-similarity arguments was located at (0, 0) with a variance of 1 on each dimension and with no covariance.

judgments. In Experiment 2, we targeted the implications of a key assumption of two-process models, namely that analytic processes are relatively slow compared with heuristic processes. If deduction judgments are speeded up, they should tend to resemble induction judgments, because the contribution of analytic processes will be reduced. As far as we are aware, this prediction has never been previously tested. Subjects in a speeded condition were asked to make deduction judgments prior to a response deadline; another group was required to respond after a fixed delay. We expected to see a greater influence of similarity on the speeded responses (like the induction condition of Experiment 1), even though both groups were given deduction instructions. Our model-based prediction was that the slope of the decision bound would be steeper in the speeded condition, reflecting greater weighting of the similarity information and reduced weighting of the analytic information.

Method

The method was the same as Experiment 1, except for the following: 62 individuals participated (slow, n = 34; fast, n = 28).

All subjects received deduction instructions. Subjects were provided with five practice problems on unrelated materials to learn the timing of the task. In the slow condition, subjects were required to wait 8 s before making a response. The computer did not allow any input until 8 s had elapsed. In the fast condition, subjects were instructed to respond as quickly as possible and within 3 s. After 3 s, the display was cleared, and the subject was not allowed to respond to that argument.

Results and Discussion

Two subjects were excluded from the data analyses (one in each condition), according to the same criteria as Experiment 1. For the

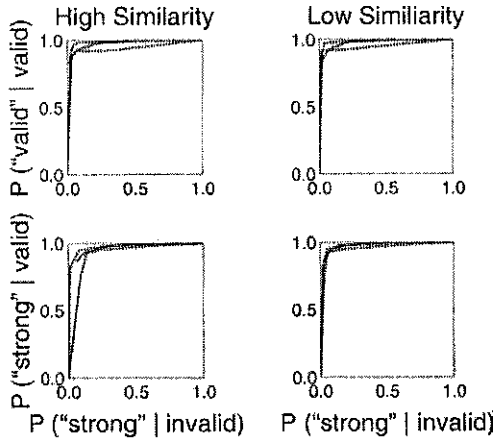

Figure 3. Simulated receiver operating characteristics (solid functions) generated with the two-dimensional model sketched in Figure 2 and the parameter values shown in Table 1, as well as 95% confidence intervals for the observed receiver operating characteristics (dashed functions) from Experiment 1. Top row: deduction condition; bottom row: induction condition; left column: high-similarity invalid arguments; right column: low-similarity invalid arguments.

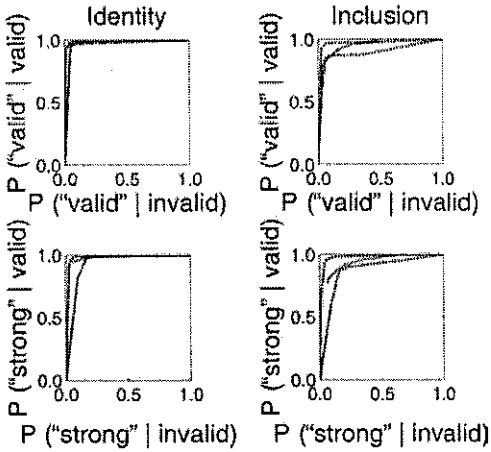

Figure 4. Simulated receiver operating characteristics (solid functions) generated with the two-dimensional model sketched in Figure 2 and the parameter values shown in Table 1, as well as 95% confidence intervals for the observed receiver operating characteristics (dashed functions) from Experiment 1. Top row: deduction condition; bottom row: induction condition; left column: identity arguments; right column: inclusion arguments.

remaining subjects in the fast condition, an average of 2.2% of responses was missing because of slow responding.

We first assessed the proportion of positive responses to valid and invalid arguments (see Table 1). For the slow condition, the average proportions were 0.96 and 0.10, respectively. For the fast condition, the average proportions were 0.83 and 0.20, respectively. Analogously to the deduction and induction conditions in Experiment 1, subjects were more likely to reject invalid arguments in the slow condition than in the fast condition, $t(58) = 2.15$, $p < .05$, suggesting greater sensitivity to validity for the slow condition. Moreover, d' was greater for the slow condition (3.03) than for the fast condition (1.80).[5] The ROCs, in the lower panel of Figure 1, are once again asymmetric and curved; they clearly show that faster responses led to lower sensitivity to the distinction between valid and invalid arguments ($z = 11.70$, $p < .001$).

We predicted that similarity would have a greater influence in the fast condition than in the slow condition. As in Experiment 1, we tested this hypothesis by calculating the difference between the positive response rates to low- and to high-similarity invalid arguments. Subjects' responses to invalid arguments were more influenced by similarity in the fast condition than in the slow condition—that is, difference scores were larger, $t(58) = 2.74$, $p < .01$.

Another way of looking at the effects of similarity is through multiple regression. Using the same predictors as in Experiment 1, we calculated that the overall R^2 was .927, $F(7, 234) = 422.1$, $p < .001$. Only four predictors were significantly different from zero. There were positive main effects of validity ($\beta = .57$, $p < .001$) and similarity ($\beta = .20$, $p < .001$). Crucially, there was a Condition × Similarity interaction ($\beta = .28$, $p < .001$), indicating more impact of similarity in the fast condition. There was also a Condition × Validity interaction ($\beta = .33$, $p < .01$), indicating more impact of validity in the slow condition.

We used Monte Carlo simulations to evaluate a two-dimensional model of the differences between the fast and slow conditions, on the assumption that the fast deduction condition would appear more like an induction task (having a steeper decision bound and greater weighting of similarity information). The resulting ROCs for high- and low-similarity arguments are shown in Figure 5; Figure 6 presents the ROCs for the inclusion and identity arguments. The model captures the data well by varying only the slope of the decision bound between fast and slow judgments (see Table 2). In Figure 5, the ROC shifts to the right for high similarity compared with low similarity, and for fast judgments but not for slow judgments, reflecting a greater similarity effect. Likewise, Figure 6 shows that the ROCs for identity problems fall higher in the space than those for inclusion problems and that the ROCs fall higher in space for slow judgments than for fast judgments.

To summarize, Experiment 2 shows two dissociations between fast and slow deduction judgments: Fast judgments were influenced more by similarity and slow judgments more by validity. These results parallel the findings of Evans and Curtis-Holmes (2005), who observed that fast judgments on categorical syllogisms were more influenced by prior beliefs, and slow judgments were more influenced by validity. Our speeded deduction results join Shafto et al.'s (2007) data on speeded induction judgments in showing a greater impact of taxonomic similarity on speeded responses compared with slower responses. Such results are naturally accounted for by two-process accounts of reasoning, assuming that fast judgments are dominated by heuristic processes and that analytic processes contribute more heavily to slow judgments.

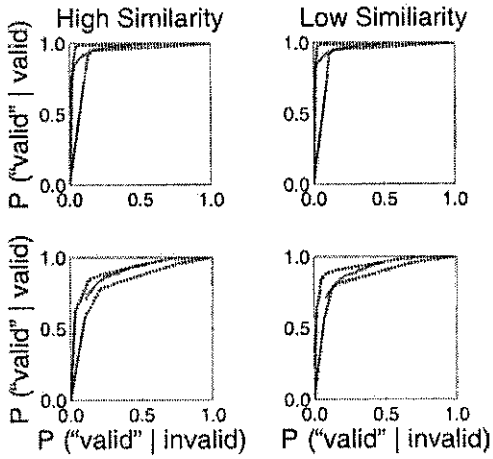

Figure 5. Simulated receiver operating characteristics (solid functions) generated with the two-dimensional model sketched in Figure 2 and the parameter values shown in Table 1, as well as 95% confidence intervals for the observed receiver operating characteristics (dashed functions) from Experiment 2. Top row: slow condition; bottom row: fast condition; left column: high-similarity invalid arguments; right column: low-similarity invalid arguments.

Two-process accounts themselves have different varieties (Evans, 2008). For example, analytic processes might follow heuristic processes sequentially or these processes might run in parallel. Although the finding of reduced analytic processing under speeded conditions is compatible with the sequential view, it can also be explained by the parallel view with the assumption that analytic processing runs more slowly. The present analyses do not distinguish between these particular alternatives, but more generally, we expect that multidimensional signal detection models will be helpful in constraining future process models of reasoning.

General Discussion

There is much to gain by building bridges between the psychology of memory and the psychology of reasoning; mathematical modeling provides one such overarching structure. We have made progress on the important question of how inductive reasoning and deductive reasoning are related. A growing body of evidence now shows that asking people to make either deduction judgments or induction judgments draws on somewhat different cognitive resources, even when people are judging exactly the same arguments (for a review of related evidence from brain imaging research, see Hayes et al., in press). Our Experiment 1 highlights differences between induction and deduction in terms of the influence of similarity. Experiment 2 demonstrates that fast deduction judgments are like induction judgments in terms of being affected more

[5] As in Experiment 1, there was a higher proportion of positive responses to identity arguments (0.98 for slow and 0.95 for fast) than to inclusion arguments (0.93 for slow and 0.69 for fast). Here, identity arguments had a d' of 3.25 for slow and 2.50 for fast. Inclusion arguments had a d' of 2.79 for slow and 1.34 for fast.

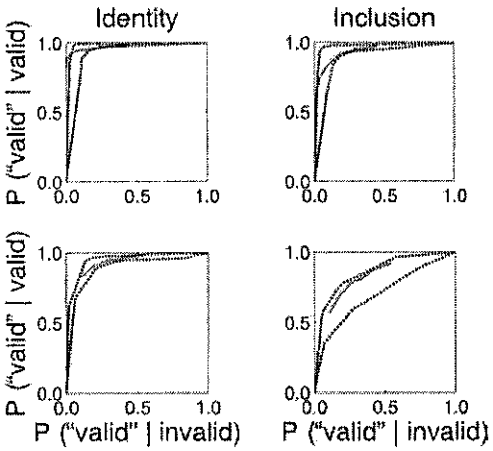

Figure 6. Simulated receiver operating characteristics (solid functions) generated with the two-dimensional model sketched in Figure 2 and the parameter values shown in Table 1, as well as 95% confidence intervals for the observed receiver operating characteristics (dashed functions) from Experiment 1. Top row: slow condition; bottom row: fast condition; left column: identity arguments; right column: inclusion arguments.

by similarity and less by logical validity. Simulations show that the results of both experiments are consistent with a two-process model of reasoning in which deduction and induction judgments result from different weighting of the information from two underlying processes. That is, we were able to model the difference between deduction and induction, and between unspeeded and speeded deduction, the same way.

What are the implications of these results for other models of reasoning in the literature? Some very successful accounts (Johnson-Laird, 1994; Oaksford & Chater, 2002; Osherson et al., 1990; Sloman, 1993) have applied a common modeling framework to both inductive and deductive arguments, with a single scale of evidence for argument strength.[6] Hence, these accounts bear some similarity to the idealized one-process account investigated by Rips (2001), but of course each model has additional mechanisms. Although these accounts can distinguish between different kinds of arguments (e.g., inductively strong vs. deductively valid), these accounts have not made explicit predictions for different kinds of judgments (induction vs. deduction). Further assumptions would be needed to extend these models to make two different kinds of judgments (and speeded vs. unspeeded judgments). Also, these models do not maintain separate sources of information about validity and similarity. In contrast, in memory research, it has been suggested that a one-dimensional signal detection model could successfully account for results pointing to two processes in recognition memory by combining information about recollection and familiarity into a single scale (Wixted & Stretch, 2004). Perhaps other models of reasoning could be developed along these lines, combining validity and similarity information into a single scale. However, other current models of reasoning do not seem to work that way now. For example, Bayesian models (Oaksford & Chater, 2002; see also Heit, 1998; Tenenbaum & Griffiths, 2001) measure the strength of an argument in terms of the probability of its conclusion, and they do not have component probabilities for validity and similarity. In conclusion, we would not rule out future versions of other models of reasoning, on the basis of the present results as well as those in Rotello and Heit (2009). Indeed, we hope that other models will be developed further to address these challenging results.

Our own efforts have targeted the detailed predictions of two-process models of reasoning, including implementing these models. Here, and in Rotello and Heit (2009), we have demonstrated that induction and deduction can be described as relying on different weighted functions of the same information (i.e., different decision bounds in a common representation). Thus, our modeling supports a two-process model of reasoning; our data would be difficult for a one-process model to accommodate. Although our models represent explicit hypotheses about how two sources of evidence are brought to bear on making judgments, we do not claim to have developed a process model of reasoning, although the multidimensional models we have developed could constrain process models. Two-process theories of reasoning themselves can make a variety of mechanistic assumptions (Evans, 2008; Stanovich, 2009). For example, our results are compatible with a more automatic, similarity-based mechanism as well as what Evans (2008) calls an *intervention* and Stanovich (2009) calls an *override*—given enough time, people have the potential to substitute optional analytic processing that is sensitive to logical validity for their automatic, similarity-based processing. More generally, we suggest that by varying instructions and time to respond, there will be a rich set of results in reasoning research that will be an important test bed for developing and testing models of reasoning.

[6] Johnson-Laird (1994) explained how mental model theory, typically applied to problems of deduction, can also be applied to problems of induction. Although allowing that people might explicitly perform deductive tasks under limited circumstances, Oaksford and Chater (2002) showed that a probabilistic reasoning model, extending logic to a probabilistic scale of validity, can be applied to problems of deduction. Osherson et al. (1990) and Sloman (1993) presented models of induction that account for some deductive reasoning phenomena (e.g., that arguments based on identity matches between a premise and a conclusion are perfectly strong).

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Correction to Son (2010)

In the article "Metacognitive Control and the Spacing Effect," by Lisa K. Son (*Journal of Experimental Psychology: Learning, Memory, and Cognition,* 2010, Vol. 36, No. 1, pp. 255–262), lenient scores were reported instead of strict scores in two Performance Data sections of the text. The strict scores were correctly used in the analyses and figures.

On page 259, the data corrections are as follows: The mean level of performance for items that were massed was 17.3 rather than 27.48, whereas that of spaced items was 30.6 rather than 34.02. The mean performance for those items in which a spacing schedule was imposed was 22.6 rather than 28.90, and the mean for the massed items was 21.9 rather than 27.48.

On page 260, the data corrections are as follows: The mean for the massed items was 5.0 rather than 10.3; for spaced items, the mean was 29.3 rather than 36.2. Children using the forced spacing strategy had a mean performance of 11.7 rather than 20.7. This mean score was still almost double that of the forcibly massed items, $M = 5.2$ rather than 11.1.

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The effect of the environment (real and virtual) and the personality on the speed of decision making

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Abstract

The purpose of the present research was to determine the effects of personality (type A&B) and the environment (virtual and face–to–face) over the speed of decision making. 106 students (71 girls and 35 boys) participated in this project. The participants initially an severed the Bortner personality type A&B questionnaires. 106 people in type A and type B were equally selected and divided in three personality groups of A (40 people) B (32 people) and a combination of AB (35 people) and then were replaced in two virtual and face –to –face environment. The examiners in each environment in a group of 2 people made decisions to reach a decision by the researcher were registered. Result of T test, one – way analysis of covariance and Enter regression analysis revealed that the environment and the personality can predict the changes in relation to the speed in making decisions. Also, there was not a significant difference in the speed of decisions making between the individuals with, A,B personality type.

Key words :Virtual Environment; Real Environment : Personality Type; Decision- Making Speed

1. Introduction

The decision making of choosing a technique from among two or several choices in a preventive behavior in order to gain a goal or a certain with the least amount their tasks are always facing conditions that require the necessity of making decisions by them (Cervon, 2003). This shows the influence and the very important position of decision making task in all the managers' tasks and organizational processes (Oliver, 2007).

The previous study shows that the relation between the personality type and the decision making speed have not been examined, knowing the fact one of the most essential problems in today's world is the problem of managers decision making in the organizations. Since nowadays changes happen very fast, in order to take advantage of these changes, decisions should be made fast. On the other hand since we live in a fast world where information and ever–expanding use of the virtual world (internet, computer, chat, etc ...) it is obvious that examining the specifications of the virtual environment and its impact on the decision making of individuals is one of today's society's necessities (Schmidt & Massey,2001; Greenberg& Baron ,1997; Furumo&Depillis ,2007). Therefore, taking in to account the above mentioned measures, the goal of the current research is to examine the impact of personality (personality types A,B) and the (virtual and face–to–face) environment over the speed of decision making. Based on this, the current research's theory and questions are as follows:1) the speed of decision making in

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the virtual and face – to – face environment is different from each other.2) the speed of decision making among the A,B and A-B personality types are different.3) the environment and personality types predicts the speed of decision making.

2. Method

The statistical community of this research was all the students of Shahid Beheshty University. sample includes 106 (71 female and 35 male) students that have been chosen via disposal sampling method and randomly assigned into virtual and face-to-face environments group .The examinees in each environment started making decisions mutually. The two examinees did not have any information about each other in the virtual environment and only through internet and chat had connections with each other. After the participants made the decision making, the time they spent to reach a decision was recorded by the researcher. The participants of the face – to – face group started to discuss the fate or the result of decision making in a two-people group in a designed testing environment in a room in the college of psychology and the conversation between them and the time spent for decision making was registered and recorded by the examiner. The data were analyzed using independent T test, one – way analysis of covariance and regression analysis.

3. Measures

3.1.In this research the task of decision making will be posed as the following question: You are a member of the college academics. You have a budget and you have to make a decision as to how to spend it. You can allocate it to a charity organization like Mahak (the charity organization for children suffering from cancer) or you can divide it by the number of the student at a university and give it to them as coupons for shopping at shopping places like shahrvand. What kind of decision would you adopt?

3.2.Personality questionnaire type A and B Bourtner (1969): this questionnaire has 14 pairs of indexes. Each pair is the indicator of two opposite characteristics and is in a seven degree likert. The validity and the ending of B and lower grades indicate the tendency to this questionnaire is Iran in the years 1992 and 1994 by the college of Medical Science in Esfehan and its result was 79%.

4. Results

Table 1. the T- test for examining significant difference between the virtual and face – to – face groups in speed of decision making

Environment	Number	Mean	Standard deviation	T	P
Virtual	48	6/50	2/021	3/46	0/001
face-to-face	58	7/86	2/013		

The result of table 1 indicate that between the virtual and face – to – face environments, there is a significant difference as far as the decision making speed is concerned ($t=3.46$, $p<0.001$) the virtual group (mean of 7.86 minutes)

In order to examin whether there is a significant relation between the personality types (A, B and AB) and the speed of decision making, the one – way variance analysis test (ANOVA) has been used whose results are shown in Table 2.

Table 2. the one – way analysis of covariance for examining the correlation between the personality types and the speed of decision making

source	SS	df	MS	F	P
Between group	40.37	2	20.18	4.82	0.01
Within group	431.26	103	4.13		
$\sum$	471.623	105			

The result of table 2 indicate that the effect of the conditions that were presented were significant. In fact the correlation between the speed of decision making and the personality types statistically is significant at P<0.01 level (F(2,103)=4/822). To determine the means difference between the personality types the Scheffe test was used. The result of these findings is presented in Table 3.

Table 3.the Scheffe test for comparing the groups mean (pair to pair)

personality type		MD	Sig
B	A	0.76	0.29
AB	A	1.47	0.01
A	B	-0.76	0.29
AB	B	0.71	0.36
A	A-B	-1.47	0.01
B	A-B	-0.71	0.36

The result of table 3 indicate that the means differences in the speed of decision making between A and B is significant and the A-B type (with the mean different of 1.47) has a higher decision making speed. Also between the individuals with the personality type of A, B there was no significant difference in the decision making speed.

Table 4. The Brief Stepwise Regression and Variance Analysis of the environment and the personality in peed of decision making

variable	B	β	t	sig	R	R2	F	Sig
A	1.52	0.33	3.20	0.01				
B	0.67	0.14	1.40	0.16	0/431	0/18	7.77	0.001
AB	0.52	0.12	1.25	0.21				
environment	1.34	0.31	3.54	0.01				

The result of table 4 indicate that among the criterion or standard variables only two variables of personality type A and the environment play a role in the prediction of the variable's variance of decision making speed. The sham of any of these variables is 31% and 33% and both are meaning in the variable of decision making speed. In other words, these two variables are able to predict 0.431 of the diffraction in the variable of the decision making speed.

5. Discussion

The result of the T test for the in dependent groups indicated that between the individuals speed of decision making in an virtual and face – to- face environments, there is a significant difference. That means that the speed of decision making of individuals in the virtual environment is more than the face – to – face environment. This result corresponds to Schmidt & Massey (2001) and Fuumo & Depillis (2007). For the clarification of this finding, we can say that visual and interactive obscurity based on writing causes the communication by the computer to lack the richness of common face – to – face dealing and as far as the social feelings in concerned, it is at a low level (Miura & Schinihara, 2003) these virtual specifications of the environment car probably be of an importance concerning the speed of decision making. The results of the one- way variance analysis of the test indicated that there is significant difference among the individuals with the A,B and A-B personality types. That means that the speed of decision making of those individuals who have A-B personality type and there was no significant differences between individuals with A,B personality type in the speed of decision making. This result does not correspond to Greenburg & baron's (1997) finding. For the clarification of this finding, we can say that probably individuals with the "B" personality show less tolerance facing individuals with type A personality and are especially affected by the time expediency.

Whether the speed of decision making was predictable through the environment and the personality type or not, the statistical regression test showed simultaneously that the environment and type a personality variable were

significant predictors for the variables of speed in decision making. For the clarification of this finding, we can refer to the personality specification of type A. one of the most important specifications for individuals having type A personality is how fast it is (Rio, 1997). These individuals try to make highest amount of progress in the shortest time and as a results they do the tasks faster (Robins, 1999). For the clarification of whether the speed of making decisions is predictable through the (virtual and face–to–face) environment, we can point out that the communications between individuals in the virtual space compared to the real space happens differently because the symbols used by individuals in shaping their understandings of one another and the tools that they use in the creation of these understandings are not equal with the existing ones in the real space (Dehghan & Nikbakhsh, 2006). Therefore, the environment, probably, considering special specifications and the individual and social specifications of the participants plays a role in the speed of the decision makers. Therefore, we can consider the environment to be a positive significant predictor in the speed of decision making. Based on the gained findings, we can refer to two- groups of practical and theory groups in the current research. At the practical level, screening the managers based on the personality type especially in regards to duties that require speed in decision making is useful. At the theory level, despite the fact, nowadays, many informational tasks are done in an virtual method; the connection of virtual environment with decision making has not come to the attention of researchers yet. As a result, doing this research, as a start, can attract the attention of domestic researchers to these variables.

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Decision-Making Theories and Models

A Discussion of Rational and Psychological Decision-Making Theories and Models: The Search for a Cultural-Ethical Decision-Making Model

Arnaldo Oliveira

Abstract

This paper examines rational and psychological decision-making models. Descriptive and normative methodologies such as attribution theory, schema theory, prospect theory, ambiguity model, game theory, and expected utility theory are discussed. The definition of culture is reviewed, and the relationship between culture and decision making is also highlighted as many organizations use a cultural-ethical decision-making model.

The study of decision-making processes is not recent. It has been evolving with contributions from a number of disciplines for over some 300 years. Such contributions have ranged from providing mathematical foundations for economics to routine applications in many areas such as finance, medicine, military, and even cybernetics. As a result, decision theories have embodied several prevalent concepts and models, which exert significant influence over almost all the biological, cognitive, and social sciences (Doyle & Thomason, 1999). New emerging theories of decision-making have been somewhat eclectic, as they demand a multidisciplinary approach to understand them. An example of this comes from Kay (2002) who affirmed that it is essential to comprehend the nature and origins of human intuitions to understand the intricacies of decision making.

Decision and behavior may be the core characteristics of decision-making phenomena. They involve the process of human thought and reaction about the external world, which include the past and possible future events and the psychological consequences, to the decision maker, of those events. The essence of decision making seems to integrate both the beliefs about specific events and people's subjective reactions to those events. For instance, decisions are responses to situations and may include three aspects. First, there may be more than one possible course of action under consideration. Second, decision makers can form expectations concerning future events that are often described in terms of probabilities or degrees of confidence. Finally, consequences associated with possible outcomes can be assessed in terms of reflecting personal values and current goals.

However, besides integrating beliefs and expectations, the analysis of the decision processes also entails the breakdown of a choice dilemma into a set of smaller issues, so each problem can be dealt with separately. Thus, the decision analysis provides a formal mechanism for ally selected. When implementing this model of choice analysis, decision makers must be clear and explicit about their judgments in order to review the analysis process for detecting the reasons why a particular strategy was selected, which Keeney (1982) , for example, called the divide and conquer orientation of decision analysis.

The decision-making phenomenon has been a frequently studied topic by several areas of human knowledge. According to Hoch, Kunreuther, and Gunther (2001), although more than three decades of systematic research on decision science have provided insights on a variety of issues, many areas of the decision making field still need to be uncovered. For example, for many organizations the current decision-making models may not be the best fit because they generally omit the element culture from the process. Thus, the purposes of this paper are first to review the literature on normative, rational decision models and descriptive, psychological decision theories, and then to discuss the role of culture in the process of making decisions.

Analysis

Rational Decision Making

Descriptive and normative decision-making theories possess distinct characteristics and follow specific methodologies for selecting a course of action. Normative, or rational, theories of decision making are based on fundamental axioms. If these established principles can be accepted, then it is possible to derive a normative theory of choice. However, descriptive, or psychological, paradigms highlight the importance of psychological elements influencing on how to reach a decision. Descriptive models use cognition to explain decision making, whereas normative theories consist of rationalistic components that indicate how decision makers should decide.

In rational decision-making models, decision makers analyze a number of

scenarios are weighed by probabilities, and decision makers can determine the expected scenario for each alternative. The final choice would be the one presenting the best-expected scenario and with the highest probability of outcome. Normative processes of decision explain how decision makers employ a particular set of alternatives to solve problems (Goodwin & Wright, 1998; Hoch, Kunreuther, & Gunther, 2001).

However, Hoch et al. (2001), who also affirmed that people rarely adhere to logical models of choice, suggested that variations in human behavior might not find any theoretical basis in normative models. They noted that these oscillations in behavior patterns are more identifiable when uncertain and unexpected scenarios influence decision makers to disregard probabilities as well as to follow the normative process in rather unusual ways.

In economic theory, for example, the rational decision-making methodology leads to the selection of an alternative after completing a simple three-step process of (a) analyzing the feasibility of the alternative, then of (b) pondering the desirability of the alternative, and finally (c) choosing the best alternative by combining both desirability and feasibility (Rubinstein, 1998). However, this type of decision-making model lacks analytical elements. Further, if decision makers rank one alternative above another, they would tend to rank them identically in other occasions in which these possible choices would be available.

Rationality has been defined as the compatibility between choice and value. Rational behavior seeks to optimize the value of the outcomes focusing on the process of choosing rather than emphasizing the selected alternative. A study done by Neumann and Morgenstern for example (as cited in Hastie & Dawes, 2000) demonstrated that when decision makers follow rational methodologies, it is possible to derive numbers that represent personal values, which are termed utilities. As a result, alternatives with probabilistic consequences should be selected according to the magnitude of their expected utility, or value. In other words, an alternative "X" would be always selected rather than choice "Y" whenever the expected utility of X is greater than that of Y.

The Expected Utility Theory could be interpreted in two ways: analytically and synthetically. According to the analytic view, choices represent revealing preferences, which are defined as implying utilities, whereas in the synthetic examination, decision makers evaluate both utilities and probabilities, and the integration of these judgments leading to a decision. In the analytic view, decision makers first observe what to choose, and then they infer what they should have expected, whereas the synthetic process occurs when decision makers discover what they want, how to achieve it, and what actions to implement and choices to make. Game theory, for example, is structured in a way that decision makers consider which solutions other people would pursue before determining what strategies to implement for selecting an alternative. The options, probabilities, and outcomes are supposedly precise. However, although possible outcomes depend on possible alternatives for all the decision makers involved in the game, the interaction of the different parties is unimportant.

Psychological Decision-making Models

Stein and Welch (1997), who discussed whether either rational or cognitive models explain decisions about war and peace, compared both the normative and descriptive decision-making models. They observed that cognitive psychology provides tools neither a single cognitive theory of choice nor a dominant decision rule prevail, they noted the existence of filters and simplifying mechanisms through which people process information and interpret their surrounding environments. The influence of these filters and simplifying mechanisms on the decision-making process always presents contextual and individual variances. As a result, these deviations may lead to conflicting expectations about judgment and behavior, which have not yet been explained by any of the decision theories. Although cognitive psychology has not posed a factual challenge to rational models by offering a general and compatible decision-making theory, it has been able to explain at some extent why people may deviate from rational behaviors. One of these explanations, for example, is based on the principle that people's set of beliefs, or culture, might influence and corrupt the information processing.

Attribution theory: schemata, heuristics, and bias

One product of cognitive psychology is the Attribution Theory. Several authors (Fiske, 1986; Iyengar, 1991; Iyengar & McGuire, 1993; Kelley, 1972; Lau & Sears, 1986; Reder & Anderson, 1980; Schank & Abelson, 1977; Thorndyke & Hayes-Roth, 1979; Walker, 1988) highlighted the importance of schemata in determining how people interpret new information based on their preexisting beliefs. A clear definition of schemata was given by Geva and Mintz (1997) who put it into context:

A schema is a working hypothesis about some aspect of the environment and may be a concept of the self (self schema), other individuals (person schema), groups (role schema), or sequences of events in the environment (scripts) (Fiske and Taylor 1991, p. 140; Fiske 1986). In addition to using them to organize their interpretations of their environments, people use schemata to develop scripts for action. (p. 73)

Once schemata is formed there will be resistance to change. In the Schema Theory, change is proportional to the rate at which new information is made available. As people are exposed to information incompatible to their preexisting beliefs, they may incorporate these new values into their schemata, which might lead to gradual change and adjustment in the future.

Another important element of the Attribution Theory is heuristics, which consists of rules people use to test their schemata and facilitate the processing of information. Heuristics can be perceived in several ways; however, they are frequently observed in three areas: availability, representativeness, and anchoring. The availability heuristic explains how people relate ambiguous information to their schemata. The heuristic of representativeness indicates the process by which people tend to exaggerate similarities between one episode and prior events. The heuristic of anchoring reveals how people misestimate the magnitude of an incident when comparing it with a reference point (Geva & Mintz (1997).

An important criticism of this theory is that heuristics and cognitive biases may result in attribution errors. For example, heuristics could impair the process of rational revision and judgment, which may lead decision makers to misinterpreting new information. In terms of cognitive biases, the egocentric bias, for instance, induces individuals to amplify their own roles as determinants to the actions of other people. The proportionality bias may also direct individuals to misread the intentions of others based on the apparent costs and repercussions of their actions. Although these heuristics and biases have been studied in laboratory only, they can still generate debatable predic-

in vivo probable outcomes have obstructed the integration of these processes into the general theories of decision making and severely constrained their analytical importance. In addition, future research should examine the links between heuristics and biases and determine which of them will prevail when two or more are able to predict different responses. In other words, so far cognitive models have been unable to establish a hierarchy among biases and heuristics and to specify why, how, and when one dominates the other (Geva & Mintz, 1997; (Lebow & Stein, 1993).

The theory of choice

In order to have explanatory and predictive power, any theory could be assessed by how well it can be judged by the usefulness of its assumptions, whether it specifies its scope conditions, and how clear it limits its logical coherence. For instance, Stein and Welch (1997) supported such a thought as they wrote:

The fundamental assumptions of psychological theories are realistic in the sense that they accord with empirical evidence, although some questions arise with respect to how well psychological theories travel from the laboratory to the real world. More problematic, psychological theories generally do not specify their scope conditions. In addition, they are often logically inconsistent with one another (Lebow and Stein 1989; Simon 1985; cf. Jervis 1986, pp. 327-328; Tetlock and Levi 1982, p. 73). (p.58)

Prospect theory

According to Hogarth, (1994), Prospect Theory has two main elements: A value function that works similarly to the utility function in the Expected Utility Theory and a decision weight function to analyze the weights that are attached to the probabilities of choice. Thus, doubtful alternatives are evaluated through a methodology similar to the Expected Utility Theory. The value function presents three main characteristics: (a) people implicitly evaluate outcomes in terms of gains or losses, (b) individuals are more sensitive to variations between outcomes the closer they are to a reference point, and (c) people experience losses and gains with different levels of intensity. Although there are a number of other implications of the value function of the Prospect Theory, the same vague conclusions might stimulate different perceptions of gains or losses when reference points are changed. As a result, because of these dissimilar perceptions, choices might be more difficult to predict. The decision-weight function depicts how individuals implicitly weigh probabilities that link choices to outcomes by super estimating small probabilities and misevaluating larger probabilities.

The ambiguity model

Prospect Theory speculates that people identify the exact probabilities connecting choices to results. However, it is worthy to note that Hogarth (1994) introduced a new insight by affirming that choice is affected by the perception of ambiguity as people tend to be unclear about the probabilities of events that could affect outcomes. As Hogarth aptly exemplified: "When considering the decision to insure against theft of one's automobile, for example, how many of us know the precise probability of theft occurring in a given period?" (p. 101). Both the Prospect Theory and the Ambiguity Model offer insights for sion phenomena are related to alternatives that are attached to losses or gains based on a specific reference point, whereas in the Ambiguity Model, decision making evolves through a multi perspective evaluative process.

After having examined several decades of research on the psychological, interactive, and temporal aspects of decision making, Hoch et al. (2001) observed that the emerging field of Behavioral Game Theory has provided new insights on the negotiation process and which actions people take to select a mutually acceptable solution. In terms of descriptive decision-making approaches, they analyzed how individuals make decisions and how they could make better ones. Corroborated by the principles of Prospect Theory, at the collective level, the Normative Theory of choice offers a cost-benefit analysis similar to the Expected Utility Theory. Decision makers determine the impact of the expected utility and the costs and benefits of a particular alternative. Thus, people who might be affected by these specific alternatives generally make decisions based on normative models.

Finally, following the assumption that there is a relationship between decision making and social behavior, Hershey and Asch (2001) discussed three characteristics that inflict a direct impact on behavioral phenomena in decision making. According to them, individuals tend to value alternatives that offer early reassurances, the ability to avoid or delay making difficult tradeoffs is greatly sought, and humans often pursue changing one's mind. These phenomena have implications not only for broader societal decisions but also for managerial assessments.

Culture and Decision-making

Both rational and psychological decision-making models have people as their central element either as decision makers or as the ones who are affected by decisions. If such assumption is pertinent, then culture might play a role in the decision-making process. However, to suggest that culture could be an element in any decision-making equation, first it is sine qua non to review some key concepts of culture and decision making and a possible relationship between them.

Culture

The concept and definition of culture have been well documented in the literature, and scholars have provided a number of interpretations to the term. Several authors formulated a broad definition for culture describing it with different terms such as basic assumptions, feelings, beliefs, values, behaviors, and so forth (Adler, 1991; Hofstede, 1997; Lewis, 1992; Schein, 1992; Trompenaars, 1994). For instance, Benedict (1959) defined culture as the cannons of choice. Kluckhohn and Strodbeck (1961) introduced the concept of value orientations to explain the phenomenon of culture. Sapir (1977) suggested that culture is an unconscious system of meanings. Hall (1992) proposed that culture is a silent language because different cultures present dissimilar perceptions about time, space, ownership, friendship, and agreements. Trompenaars (1994) suggested that culture directs people's actions. He affirmed that "culture is man-made, confirmed by others, conventionalized, and passed on for younger people or newcomers to learn. Culture provides people with a meaningful context in which to meet, to think about themselves, and to face the outer world. Schein (1992) defined culture as "A pattern of shared assumptions that the group learned as it solved its problems of external adaptation

the correct way to perceive, think and feel in relation to those problems" (p. 97). Triandis (1972) viewed culture as a social phenomenon that builds a shared-knowledge structure, gives meaning to incoming stimuli, and guides outgoing reactions. He suggested that values surface unclear guidelines that might induce behavior.

Decision making

On the decision-making arena, a number of authors (Geva & Mintz, 1997; Hastie & Dawes, 2000; Higgins & Bargh, 1987; Hogarth, 1994; Meneghetti & Seel, 2001; Stein, & Welch, 1997) have discussed the importance and influence of beliefs, values, and behavior in the decision-making process. Similarly most authors affirmed that the triad beliefs, values, and behavior has been frequently associated with and affected by culture (Benedict, 1959; Hall, 1969; Hofstede, 1997; Kluckhohn & Strodbeck, 1961; Lewis, 1992; Sapir, 1977; Schein, 1992; Trompenaars, 1994; Triandis, 1972).

Decision and behavior could be the main elements of decision-making phenomena, which involve the processes of thinking and reacting to the external world stimuli. Culture teaches preferences in life and manifests itself in how people behave, think, and believe. Higgins and Bargh (1987), for example, who studied several decision-making models, found that culture, which they called filters and simplifying mechanisms, helps people to process information and interpret their surrounding environments. Hogarth (1994) affirmed that individuals are assumed to evaluate outcomes in terms of gains or losses and are more sensitive to variations between outcomes according to their reference point, or what Higgins and Bargh called schemata. Because of its broadness, the concept of culture helps to describe the complex and rank-ordered principles influencing the thinking- and-taking-action process that continually occurs when people seek for solutions. Although every one at all times is pursuing answers for a limited number of common problems, there is a limited variability in solutions for problems, and all alternatives and solutions are present in all societies at all times, but they are differentially preferred.

A brief analysis of the literature shows a relationship between culture and decision-making. Because organizations have faced increasing new challenges in the 21st century, managerial leaders may need to follow decision-making processes that ingrain sustainable development concepts in both strategic and operational planning, which have demanded the adoption of an adaptive decision-making model. One basic assumption of such a model is that ethical and moral, cultural, values inherently belong to it.

A Cultural Ethical Model of Decision-making

Not too many authors discussed decision-making models that incorporate culture and other specific elements such as ethics, moral, and, stakeholders. However, Tecker, Bower, and Frankel (1999), for example, proposed a decision-making model represented by a knowledge-based approach to policy governance for the American Society of Association Executives. According to them, the model is a system that leads to what the called consultative leadership. Although this method makes information available for individuals and groups to make decisions, there is a strong ethical analysis that needs to be done before any decision can be made. Tecker et al. proposed four critical questions must precede any decisions:

stakeholders, and (d) customers that is relevant to this decision?

2.What it is known about the capacity and strategic position of the organization that is relevant to this decision?

3.What it is known about the current realities and evolving dynamics of organization's members, industry or profession that is relevant to this decision?

4.What are the ethical implications of these choices?

The ability to deal with real-life ethical dilemmas is necessary in the complex business environment. Another important contribution in terms of dealing with cultural-ethical issues in decision making was made by Meneghetti and Seel (2001). They have proposed a decision model that helps to deal with ethical dilemmas. Ethical dilemmas may contribute to the possibility of making wrong or right decisions. However, their dichotomic nature might be understood after the identification of some general characteristics. According to Meneghetti and Seel, an ethical dilemma possesses five traits: (a) it is difficult to specify, (b) it has a particular context, (c) it may not be evident, (d) it involves several stakeholders, and (e) it combines people's lack of knowledge with their inability to make the right decision. Their model offers, what they called, a non-prescriptive four-step process for analyzing an ethical dilemma and making an ethical decision. However, the authors also recommended that the terms values, ethics, and morality be well defined before analyzing the model. According to them, value is a strong held belief and attitude about what is wanted. There are two types of values: Those that are private and called moral values and those that are public and termed ethical values. Moral values have a primary impact on people's personal lives and are influenced by culture, religion, and family. For example, a moral value could be what people think about drinking alcohol. Ethical values are universally accepted beliefs about right and wrong. For instance, an ethical value could be what people consider honesty.

Discussion

Cultural diversity is not a transitory condition that enables the planning on the assumption of mutual understanding. Conversely, a number of studies (Brake, Walker & Walker, 1995; Hall, 1992; Hofstede, 1997; Maddox, 1993; Trompenaars, 1994) have shown that cultural diversity is a continuous phenomenon that occurs when people from different cultures think, communicate, and behave based on their core values. Culture is also a complex intermix of determinants. Although the so-called national culture influences people's behaviors, other strong elements such as family, gender, profession, religion, and so forth help to mold an individual's cultural profile.

The current literature have supported the premise that culture dictates the way individuals and groups solve their problems because it influences how people think, behave, and communicate (Hall, 1992; Hofstede, 1997; Kluckhohn & Strodbeck, 1961; Schein, 1992; Trompenaar, 1994). Each culture has its own set of core values and basic assumptions, which compound a framework of cultural orientations. However, to deal with cultures and stakeholders' differences effectively, it is necessary to acquire cultural competence, which is a concept that helps overcome the natural barriers imposed by the explicit components of a culture in order to comprehend its underlying basic assumptions. Once cultural competence is learned, it is possible to reconcile the stakeholders' potential cultural differences.

However, to understand a group's culture and predict its be-

tinguishable from other cultures. Several studies (Adler, 1991; Brake, Walker & Walker, 1995; Hofstede, 1997; Schein, 1992; Trompenaar, 1994) provided conceptual models that elucidate the essential components of a culture and propose cultural orientations to business practices. However, the decision-making science lacks a reliable theoretical model that elucidates a potential central role of culture in the decision-making process. In addition, current decision-making models that embrace culture do it only marginally by highlighting a few cultural aspects such as ethics and values.

Conclusions

Many areas of human knowledge have extensively researched decision-making theories. The literature has shown that choice and behavior represent the core characteristics of decision-making phenomena and involve the processes of thinking and reacting. A decision is a response to a situation and comprehends judgment, expectations, and evaluation.

Descriptive and normative theories propose distinct assumptions to explain the decision-making process. Descriptive, psychological decision theory focuses on how individuals decide, whereas normative, rational decision theory elucidates how decision makers should decide. Psychological theories have uncovered basic principles people use when dealing with problems. Rational methodologies explain how decision makers analyze a number of different outcomes from each alternative scenario for selecting a final choice.

Psychological decision-making models suggest the existence of special mechanisms through which people process information and interpret their surrounding environments. Such mental processes are based on the principle that people's beliefs and values might influence their information processing. These beliefs and values are termed schemata and comprise concepts of self, other individuals, and script.

Rational decision-making models establish a weighing mechanism between choice and value. Rational methodologies lead to the optimization of the outcomes by emphasizing the process of choosing rather than on what is chosen. A certain alternative is always selected whenever its expected value is greater than that of other potential choices.

Both descriptive and normative decision-making theories conceptualize and discuss the meanings of value, beliefs, and behavior. A number of studies have focused on the investigation of culture, and a consensual definition of culture has also embodied the concepts of value, beliefs, and behavior. Culture provides the elements for individuals to solve their problems of external adaptation and internal integration. Once a solution works and is considered legitimate, it is taught to others as the correct way to identify, think, and act in relation to those problems. Culture dictates preferences in life and manifests itself in the way people behave, think, and believe. Decision-making phenomena also involve human judgment processes about the macro and microenvironments in constant relation with people's values and beliefs. Therefore, decision-making processes possess a strong cultural component that might influence the decision style, perception, and attitudes of decision makers.

Decision-making models for analyzing ethical dilemmas and making ethical decisions have been proposed. However, it is essential that the definitions of values, ethics, and morality could embrace the multicultural perspective of every stakeholder involved in and by the process of making a decision. Therefore, decision-making models should provide a comprehensive framework for evaluating ethical dilemmas based on the stakeholder's cultural orientations. Uncovering cultural differences and reconciling seemingly opposing values are the axis of such an ethical-cultural decision-making model.

Recommendations

The literature has shown that cultural diversity is not a transitory condition, but a continuous phenomenon. However, to deal with distinct cultural orientations and stakeholders' differences effectively, it is necessary to acquire cultural competence. Once cultural competence is learned, it is possible to reconcile the stakeholders' potential cultural differences. Organizations should consider the inclusion of culture as an important element of their decision-making process. Although, decision making and culture have been extensively discussed in the literature, studies investigating the relationship between the two subjects are still necessary. It is still unclear how culture may affect any decision process. Therefore, empirical research examining the applicability and effectiveness of such interaction is indispensable.

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Seven Basic Steps to Solving Ethical Dilemmas in Special Education: A Decision-Making Framework

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Abstract

This article presents a seven-step framework for decision making to solve ethical issues in special education. The authors developed the framework from the existing literature and theoretical frameworks of justice, critique, care, and professionalism. The authors briefly discuss each theoretical framework and then describe the decision-making framework and guide the reader through the framework using an illustrative case approach.

Ms. Emma is a special education teacher working with students identified as having learning disabilities (LD). Now that it is the end of the year, Ms. Emma is thinking about which students on her class roster will be taking the state-mandated benchmark tests. During a brief informal meeting with the principal, Ms. Emma is surprised to hear that the principal wants several of the students with learning disabilities to take alternate assessments, rather than the standard benchmark test. Ms. Emma knows the law stipulates that alternate assessments are only administered to children with disabilities who are unable to take the benchmark tests, even when they are provided with accommodations. When Ms. Emma inquires as to why the principal wants the students to take alternate assessments rather than the curriculum-based measures, the principal replies, "They will never pass the benchmarks and that will bring down our scores. We can't risk not meeting the state's annual yearly progress targets. Our school barely met the state averages last year." Ms. Emma left the meeting feeling very uneasy. Going against the principal in the upcoming individual education plan (IEP) meeting could jeopardize her job, but she also didn't want to be pressured

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into doing something illegal. How can she and the IEP team resolve this ethical dilemma?

Ms. Emma is certainly not the first nor the last special education teacher to be faced with an ethical dilemma. An ethical dilemma is a situation in which an individual or team is faced with a difficult choice while fully aware of the nature of that choice and the affecting outcomes for good or ill (Paul, French, & Cranston-Gingras, 2001). How teachers, like Ms. Emma, resolve this dilemma will affect the lives of many people, including the student and family, the principal, society in general, and the teachers. Professional organizations, such as the Council for Exceptional Children (CEC), provide teachers with a professional code of ethics that guide their practice. For example, the CEC code of ethics emphasizes the need for special education professionals to "work with the standards and policies of their profession" (CEC, 2009, p. 1). While the professional code of ethics seeks to guide educators toward ethical practice by explaining the standards, knowing how and when to enact these standards within differing contexts remains up to the individual to explore and define (Bigbee, 2012). The situation outlined in the vignette calls for a disciplined reflective stance, one that requires a team to stand back from everyday practices and their own embedded values to make an informed decision. To act in such a manner requires not only a set of principles but also a decision-making framework that guides the team through a process that culminates in a well-reasoned decision.

While there exist several decision-making models in the literature, most are specifically geared toward a particular discipline, such as medicine, counseling, educational leadership, or psychology. Cottone and Claus (2000) reviewed nine decision-making models from the counseling literature and found that the effects of decision-making models continue to be uncertain, and many practice-based models fail to integrate theoretical tenets. Vergés (2010) proposed that ethical models should include contextual factors and some researchers have developed models that are particular to specialty areas such as psychology (e.g., Knapp & VandeCreek, 2007). However, decision-making models specifically designed for special education teachers dealing with ethical situations are clearly lacking in the current special education literature. The purpose of this article is to provide teachers and school-based teams with practical suggestions on how to resolve ethical dilemmas using a seven-step decision-making framework, or set of assumptions, that can guide the team toward resolving ethical issues. The framework is gleaned from the existing literature that integrates four theoretical perspectives: justice, critique, care, and professionalism. This particular

conceptual framework is suggested as a means for education teams to gain a disciplined reflective stance. First, we provide background on the theories that inform the framework and we then describe the decision-making framework in more detail.

Theoretical Background

The theoretical perspectives integrated within the decision-making framework proposed in this article can assist teachers in appraising and balancing conflicting values in specific contexts. The framework is constructed from the theories of justice, critique, care, and professionalism (Foucault, Kritzman, & Sheridan, 1988; Gilligan, 1982; Noddings, 1982; Rawls, 1971; Shapiro & Stefkovich, 2005). Each of these represents a perspective or way of seeing a particular problem or dilemma. Examining issues from multiple theoretical perspectives can reveal a team's propensity to view issues from a dominant perspective and also allows the team to consciously redefine an issue from an alternative perspective. The decision framework here accomplishes this goal by presenting questions that shift the thinking of team members to consider varying perspectives before coming to a decision. The complexity of situations and diversity of cultures in today's schools require that educators examine issues broadly to better understand those issues. While a rich and thorough discussion of each theory is not within the scope of this article, a brief overview is provided in Table 1. It should be noted that we have arbitrarily teased apart the perspectives of justice, critique, care, and professionalism to simplify the perspectives presented while still recognizing the complex intersections that occur among them.

A Decision-Making Process Framework

A decision-making process framework as proposed in this article has several advantages over using a single professional code of conduct to resolve ethical dilemmas. First, a framework allows the team to uncover the details and nuances that create a professional dilemma in a specific context. Second, a framework helps organize and create automaticity in metacognition. That is, the team will need to monitor and control its thinking process to solve ethical problems and do it frequently enough to make the process routine and at a level of automaticity (Martinez, 2006). Thus, a decision-making framework allows the team to enhance its own metacognitive skills and invites proactive

Table 1.

Theory Overview

Theoretical Perspective	Description
Justice	The justice perspective holds that all persons should be treated equally and fairly. Moreover, the justice framework entails the concept of fairness in that individuals should count as equals and that they are free and moral (Rawls, 1971). Here, the theory of justice is one that views rights as coming from society that are established in law. To view an ethical dilemma from a justice perspective means that one is concerned primarily with governing laws that are based on universal principles that can be impartial and verifiable. So within the context of special education, the team would want to pose questions such as: "What are the laws that govern state-mandated tests for children with disabilities?" The justice framework assumes that laws can be created to equalize the distribution of goods and services to each person in a fair and equitable way, an assumption that is vehemently argued by critical theorists.
Critique	Like the justice perspective, the critique perspective attends to the nature of laws, but this view is more concerned with determining whether a law or the legal process is just. The critique framework is informed by postmodern critical theory and centers on the examination of social problems in historical and cultural contexts. For example, critical race theory purports that race is viewed as normal in American society because it is so entangled in our everyday lives that it seems a natural condition (Stefancic & Delgado, 1999). Thus, critical theory seeks to make the "invisible" visible. When examining an issue from the critique framework, one challenges the issues through debate and seeks to redefine or reframe the concepts of power, privilege, culture, language, and even justice (Shapiro & Stefkovich, 2005). Essentially, the critical perspective seeks to challenge the passive acceptance of the "way things are" and questions the injustices and inequalities in societal systems.
Care	While the perspective of justice and critique both encompass the idealized notion of the "isolated individual," the ethic of care focuses on the fundamental elements of relationships. It is concerned with meeting the needs of ourselves and others and builds on the sense of obligation we have to care for those who are dependent or vulnerable. The ethic of care can be described as one in which the activity of caring is a moral one, rather than a set of principles to be followed. This perspective emphasizes responsibilities and relationships rather than rules and rights. It is also bound to concrete situations rather than abstract and formal ones (Tronto, 1993).

Professionalism	The idea of a professional perspective is one in which the moral imperative is to serve the best interest of the student. By professional, we mean that the educator is regarded as highly qualified and educated from an institution that is recognized by an accrediting organization (e.g., the Council for Exceptional Children) and who possesses the knowledge and skills to teach in education. The CEC code of ethics is constructed from eight fundamental principles that guide a special educator's practice, and members of the special education profession are responsible for upholding each of the principles (CEC, 2009). While related to the framework of justice, this perspective includes one's own values and beliefs necessary for dealing with complex issues in which the professional code conflicts with one's personal code of ethics. For instance, one principle in the CEC code of ethics states that "special education professionals seek to uphold and improve where necessary the laws, regulations, and policies governing the delivery of special education and related services and the practice of their profession" (CEC, 2009). However, if the an individual or team's moral values conflict with the nature of the policies instated, the ethic of professionalism makes the well-being of students the primary value of all decision making and actions (Shapiro & Stefkovich, 2005).

Table 2.
Additional Ethical Dilemma Example

Scenario:

Twelve-year-old Maria is Latina and has autism. Maria is able to read at grade level, but has difficulty with reading comprehension. She is included in the language arts general education class at her middle school, and comes to the resource room for direct instruction on reading comprehension and math. One of Maria's IEP goals is to participate in academic discussions with same-age peers in the general education classroom. When the special education teacher visited the seventh-grade language arts class, she saw Maria working on word searches in the back of the room while the other students were engaged in a whole-class discussion. When asked why Maria was in the back of the room, the general education teacher explained that Maria got very anxious during their discussions, but calmed down quickly when completing the worksheets. The general education teacher indicated that the new inclusion policy was working, and that Maria was doing very well the class. The teacher continued on enthusiastically saying that she was happy to have Maria in class because she was so well behaved and quiet.

Step 1: Describe the context of the situation

General education classroom with 17 students: 9 Latino (4 female and 5 male), 8 Caucasian (6 females and 2 males); during large-group language arts discussion; one female Latina with autism.

Step 2: Describe the issues involved

No access to the general education curriculum; socially isolated from peer group; IEP goals not addressed; gender issues; cultural codes of conduct.

Step 3: Guiding questions

What are the beliefs of the teachers regarding the behavior of female Latina students? What is the value of education for students with disabilities? What does the law say about following the IEP? What is appropriate behavior for students with disabilities, Latinos, females? Who benefits from this situation? What are the short- and long-term consequences of being excluded from the class general education curriculum for Maria and her family?

Step 4: Identify alternative decisions

Conference with the general education teacher explaining the legal requirements related to following the IEP; suggest that Maria be included in small-group discussions in the classroom, gradually working toward time in the large-group instruction; co-teach in the language arts class and model how to prompt and reinforce Maria for volunteering during discussions.

Step 5: Identify consequences for each alternative

Classroom teacher may ignore IEP; the general education teacher may include Maria in small-group work; Maria may volunteer during discussions if the teachers co-teach several lessons together.

Step 6: Rank order alternatives

Conferencing, co-teaching, small-group work

Step 7: Monitor and modify the decision

Classroom teacher collects observational data on Maria's performance during discussions; special education teacher to model then coach the general educator as Maria is taught to volunteer in class; IEP team reviews Maria's goals and objectives.

practices rather than reactive ones. Third, the framework presented here is unique in that it drives the team to examine the context of an ethical dilemma through the lens of four theoretical perspectives: justice, critique, care, and professionalism. The team can acknowledge and identify its individual intuitive level of justification, but the framework compels it to move forward in its thinking as it considers particular questions and evaluates potential alternatives within the school and community context. Finally, with the rise and frequency of change within our technological world, it is likely that the context in which teachers are trained will be different from the context in which they work. This framework can offer guidance to school teams that can be faced with ethical situations that may not have even been considered by those who wrote the professional code of ethics for teaching children and families with disabilities (Vergés, 2010).

In the next section we identify and discuss each of the seven steps of the decision-making framework and apply them to the illustrative ethical dilemma faced by Ms. Emma. Table 2 presents an additional ethical dilemma in which the decision-making framework is used.

Step 1: Describe the Context of the Situation

The first step in the decision-making framework is to identify the situation and all of its elements. The dilemma is situated in a public-school setting where the teacher is employed to provide special education services to children with and without disabilities. The immediate supervisor, the principal, is responsible for the direct administration of services for all children and is accountable to the superintendent and school board. While the law stipulates that all students must participate in the state-mandated tests, there are exceptions to the rule. These exceptions specifically address students with disabilities who are unable to take the test even when provided with accommodations. For these students, an alternate assessment is provided. The determination of who can and cannot take the standard assessment is determined by the members of the individualized education program (IEP) team.

Step 2: Describe the Issues Involved

The next step is to identify the issues inherent within the ethical dilemma, which, for the purposes of this article, is the dilemma presented in the vignette. The teacher recognizes that all students, by law, must take the state-mandated benchmark test. Children who are unable to take the test are provided with an alternate assessment system that requires the use of a modified assessment. The modified assessment, while loosely based on the core curriculum, essentially tests a more

functional curriculum, such as life skills (Stockall & Smith, 2013). Life skills may include dressing oneself, using a vending machine, identifying environmental print (i.e., exit, enter, toilet), and demonstrating basic social skills (i.e., using polite forms of address, taking turns in conversation, asking and answering questions). If a student is part of the alternate assessment program that student will not be able to demonstrate knowledge of the standard core curriculum, including reading, mathematics, and other core content areas. An inaccurate assessment of the student's abilities may lead other professionals to underestimate the student and potentially limit their rights to an equitable education. The principal is invested in demonstrating that the school has met its obligation of adequate yearly progress (AYP) for all students. Sanctions for not meeting AYP may include teacher and administrative layoffs, reduced funding, and/or limited community control over the school's operations. Finally, if the teacher goes against the principal's recommendation for alternate assessment, the teacher may be reprimanded or even fired. After defining the issues, the team moves to the next step in the decision-making process.

Step 3: Pose Questions From Each Ethical Perspective That Might Affect Each Issue

Step 3 is the pivotal point of the framework, because it consists of specific questions that initially reveal the team's personal beliefs and values. Once these assumptions are fully recognized they can be set aside as new perspectives are uncovered and examined. Examining each set of questions in the framework compels the team to shift from one viewpoint to another, each time uncovering the nuances of the situation and then provoking another paradigmatic shift from that perspective to another. For example, the team's first response is to take into account their own beliefs and values by asking questions such as: What are our beliefs about the role of assessment in the education of children with disabilities and those without? What are our beliefs about the assessment and alternate assessment processes? Does the way in which students are assessed matter? If so, why or why not? What is the value of education for children with disabilities? And on a more personal level, individual team members might wonder: How important is this job to me? What consequences am I willing to take to uphold my beliefs and values on this matter? Table 3 provides further guiding questions that educators may consider.

It is important for educators to be aware of the impact of their own values and beliefs because they will certainly influence the decision-making process. However, if the team can stand somewhat *outside* of the situation, where they can make judgments about its

Table 3.
Guiding Questions to Evoke Different Ethical Perspectives

- What are the team's beliefs about the role of _____ in the education of students with disabilities?
- What is the value of education for students with disabilities?
- Why does this issue matter?
- What consequences are the members willing to take to uphold their own values or beliefs?
- What are the laws related to this issue?
- What is the district's policy regarding this issue?
- Who benefits from the district's policy on this issue?
- Who has the authority and power to make this decision?
- How will our decision maintain or challenge the status quo?
- Who will benefit from the decision we make in this situation?
- What will be the short- and long-term consequences of our decision for the student and other stakeholders?
- What effects will this have on other students in the same or other marginalized groups?
- How does the student feel about the issue?
- How do the parents and family of the student feel about this issue?
- What does our professional code of ethics direct us to do?

demands while being aware of their own assumptions, they can begin to appreciate other perspectives. The ethical imperative is to identify and clarify the multiple values and beliefs that are related to the issue at hand. Next, the team considers questions related to the ethic of justice.

The ethic of justice. Questions that can guide the team's reflection within the ethic of justice include: What does the law say regarding the assessment of children with disabilities? What are the specific criteria for using an alternate assessment with children identified as having a disability? Should this law be enforced? What are the consequences for not upholding this law? Is there a district policy regarding the assessment of children with disabilities? If so, what is it?

To address these questions, it is important that educators have access to the most recent legal information regarding the rules and regulations for assessing children with disabilities. One resource that the team may reference is the Web site www.wrightslaw.com, which offers current information on legal issues in special education. For more information, the team can also search the U.S. State Department's

special education Web site that provides regulations related to alternate assessments for students with significant disabilities. In addition, the team may refer to the special education policy handbook obtained from the school district's special education director.

Title I of the No Child Left Behind Act (NCLB, 2001) stipulates that states can establish alternate achievement standards for students with significant cognitive disabilities and use alternate standards in determining proficiency for up to 1% of the total population of students tested when calculating AYP. This means that one possible explanation for including a student in the alternate testing might be to fill the 1% population group. The principal might have interpreted this regulation to mean that if 1% of the students with disabilities in the school took the alternative assessment, it would guarantee that the school would meet its AYP. Increasing the probability of meeting AYP would help to safeguard the school's reputation, as well as the principal. Thus, seeking answers to these pivotal questions from a justice perspective can uncover misinterpretations and misjudgments.

The ethic of critique. Examining the situation from an ethic of critique, the team reflects on the status quo and the inconsistencies that pervade the educational system in American schools. Questions that deal with social class, race, gender, and other differences are difficult to answer but must be considered when making a well-informed and rational decision.

From a critical perspective, the team considers questions such as: What are the cultural assumptions that undergird the special education laws and policies? How are students with disabilities regarded within the school, community, state, and national levels? Who makes the school policy? Who benefits from the school policy or state law? Who has the power at the local, state, and national level and how is it enforced? How will our decision maintain or challenge the status quo?

The team will want to consider how language or discourses work to form the identity of the student as one who has a disability. Our Western culture has historically held particular psychological assumptions about the nature of disability; for example, disability can be viewed as an inherent characteristic of an individual, thus placing the disability within the individual (Rogers, 2003). If disability is viewed as within the person then teams' assumptions may include: (a) disability is a weakness; (b) disability is biological and therefore permanent; (c) disability cannot be remediated, only compensated for; and/or (d) disability is abnormal. Each of these assumptions will then drive the decision making of the team and policy makers, leading to policy that disempowers and marginalizes those with disabilities. Some disability advocates are currently working to reposition the

location of disability from inside the child to within the instructional context (Lewis, Ketter, & Fabox, 2001; Rogers, 2003). Thus, if disability is a function of the environment or contexts of interaction, assumptions that are based on the social construction of disability tend to empower those with disabilities by shifting the focus on changing the contexts rather than the individual. Therefore, teams that hold these assumptions might consider a decision to make testing accommodations for a child with a disability. Such a recommendation would imply that the child has the ability to achieve satisfactory results on the curriculum-based measures and that the disability resides outside of the child and within the environment.

The ethic of care. The ethic of care is an ethic of relation. Decisions based on the ethic of care focus on the relationship between the person who provides care and the cared for. It is in the context of *relation* that the attention of the caregiver is directed to the express needs of the cared for (Noddings & Kentel, 2011). In considering the needs of others the team will want to ask the following questions: Who will benefit from the decision made in this situation? Who will be hurt from the decision? What will be the short- and long-term consequences of the decision for the student, the student's family, the principal, the teacher, and the teacher's family? What will the student need to feel a sense of belonging within the school? What effects might this decision have on other children with disabilities who take the alternate assessment?

In contrast to the ethic of justice, the ethic of care is oriented toward the needs rather than the rights of an individual. From an ethic of care, team members will want to recall conversations with the student in regard to their feelings about participating in the general education testing process. The team will also want to consider how the parents and family feel about the assessment process for the student. From an ethic of care, Noddings and Kentel (2011) remind us that "in every situation, caregivers must be attentive, exercise their empathic abilities, evaluate needs and their own capacity to respond, and consider the likely consequences of their proposed response on others in the web of care" (p. 15).

The ethic of professionalism. Finally, the team turns to the professional organization CEC, and reviews the code of ethics (see https://www.cec.sped.org/Standards/Ethical-Principles-and-Practice-Standards). The ethic of professionalism evokes questions for the team, such as: What is in the best interest of the student based on his or her unique needs? What would the teaching profession expect us to do? Who has the authority and power to make the decision for the student to participate in the testing? Have all stakeholders (e.g., the IEP team) been apprised of the situation?

Step 4: Identify Alternative Decisions for Each Issue

After careful reflection from multiple perspectives, the team can now return to the issues and generate possible alternatives for each issue. The goal is to identify all possible alternatives and solutions that have something in common and are viewed from an ethical perspective. As opposed to brainstorming, a technique used to generate fluency of alternatives, a hierarchical heuristic (i.e., set of rules) proposes that the individual identify an "umbrella" term or category of solutions that in turn evokes other high-quality solutions (Butler & Kline, 1998). For example, the teacher first considers the concept of *care,* and proposes to place a student in the general education classroom for the state-mandated assessment. This idea evokes another idea to place the student in the general education classroom *and* give the classroom teacher a list of simple accommodations for the student. A third solution that comes to mind is to place the student in the general education classroom and the special education teacher *provides* the accommodations for the student. This heuristic facilitates solution generation and leads to solutions that are higher quality than those derived from brainstorming (Butler & Kline, 1998).

Step 5: Identify Consequences for Each Alternative

Once possible alternatives have been generated, the team considers each one carefully to identify the possible consequences of each alternative. There are risks and benefits from each possible solution and the team will want to consider the short-term, ongoing, and long-term consequences for each alternative. The first possible option is to place the student with a disability in the general education classroom to take the standard-based assessment. After further thought, the team finds that this solution may:

- result in the student failing the test,
- place the student in a stressful environment in which he or she is potentially unprepared,
- put the teacher's job in jeopardy for insubordination, and/or
- implicate the general education teacher.

Conversely, this solution may also:

- allow the student to graduate with a standard diploma,
- allow the student to show his or her actual abilities in relation to the standard curriculum,
- create a more equitable and quality education for the student,
- set a precedent for looking more closely at the eligibility of students with disabilities to partake in the mandated assessments, and

- create a feeling of satisfaction for the team as they regard themselves as ethical and moral individuals.

Certainly there are other alternatives and consequences that could be considered, but the idea is that the team evaluates the alternative in relation to the consequences of each alternative.

Step 6: Rank Order Alternatives and Decide Who Will Be Affected by the Decision and Who Needs to Be Represented in the Process

At this step of the decision-making process, the team has information that can inform collaborative negotiations with the primary stakeholders who will be affected by the decision. It is important to understand that a decision is never made in a vacuum but always involves at least one other person (Cottone & Claus, 2000). Because there exist different levels of consensus operating around a dilemma, it is possible that there will be disagreements. At this point in the decision-making process, the team is prepared to address the conflicts that may arise in discussion with the principal. The team will want to discuss and debate the issues identified in the dilemma in collaboration with the principal to: (a) identify the possible number of solutions, (b) rate their usefulness and efficiency in achieving a desired outcome, and (c) select the optimal choice accordingly.

While the team negotiation implies a context of disagreement, not all meetings involve conflict. The team may find that after discussing the issues of the dilemma, a consensus may be reached. Or it may be the case that arbitration is necessary, and the team considers calling in a third party to hear the issues and help build consensus. For example, if after considerable discussion and weighing the merits and limitations of their options the team and principal are still unable to come to consensus, they may decide to enlist the help of the special education director as an arbitrator. The goal of the team members is to negotiate the alternatives with each other, where negotiation does not necessitate that all are happy with the decision but that each party can "live with" the decision.

Step 7: Monitor and Modify the Decision When Needed

Once a decision is made, all parties involved will need to monitor and modify the decision as needed. For instance, if all parties (i.e., teachers and principal) decide to include the student in the mandated assessment with accommodations, their roles and responsibilities must be determined for monitoring the student's testing situation. The special education teacher can identify the accommodations to be used with the student and provide them during the testing administration. Some accommodations may include presenting questions

aloud, individual or small-group testing, and/or extended time. The principal will want to compare the outcomes of the student's testing with the achievement tests that the student took during the initial evaluation for special education services. In this way, even if the student does not reach the benchmark criteria, the principal can still show evidence of the student's AYP.

Final Thoughts

Professionals in the field of education, specifically special education, will undoubtedly face ethical dilemmas during the span of their careers. While many resources are available for special education teachers to utilize as they make these types of difficult decisions, oftentimes these resources fail to provide a clear framework for how to approach, reason through, and ultimately make the best decision. Grounded strongly within the theoretical literature, the decision-making framework presented in this article provides a well-defined sequence of steps that teachers can follow as ethical dilemmas arise. The four perspectives of justice, critique, care, and professionalism (Shapiro & Stefkovich, 2005) provide the basis for the framework and offer guidance as the special education professional: (a) considers the context and issues involved (Steps 1–2), (b) poses questions and identifies both consequences and alternatives for each issue (Steps 3–5), and finally (c) rank orders the alternatives and monitors the final decision (Steps 6–7). Following these steps can help school teams feel more confident in making well-informed and reasoned decisions.

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Assignment 4: PowerPoint

Preparing Your Elevator Speech

An elevator speech is a type of short dialogue that markets you as an individual, sells an idea, or promotes your business, profession, or cause. According to some business professionals, an elevator speech is as necessary as a business card (Fallon, n.d.; King, 2014). Here are some important guidelines:

Know your audience. Before writing any part of your elevator speech, investigate your potential (or in this case – assigned) audience. You will be considerably more likely to succeed if your elevator speech is clearly targeted at the individuals you are speaking to.

Know yourself. Define who you are and what benefits you will bring to the potential career or profession.

- What are your key strengths?
- What adjectives describe you?
- What do you want others know about you?
- Why are you interested in the company or profession the person you are speaking to represents?

Start an outline. Start an outline of your material using bullet points. You can use the following questions to start your outline:

- Who am I?
- What do I offer?
- What problem is solved?
- What are the main contributions I will/can make?
- What should the listener do as a result of hearing this?
- What should the listener feel after hearing you speak?

Finalize your speech. Now that you have the outline for your material, you can finalize the speech. The key to doing this is to expand on the notes you made by writing out each section in full. To help you do this, follow these guidelines:

- Take each note you made and write a sentence about it.
- Take each of the sentences and connect them together with additional phrases to make them flow.
- Go through what you have written and change any long words or jargon into everyday language.
- Go back through the revised material and cut out unnecessary words.
- Finalize your speech, making sure it is between 90 and150 words long.

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30 Second Elevator Pitch and Professional Summaries

The purpose of the "elevator pitch" is to summarize YOU in about 30 seconds. The premise is that you get on an elevator and the CEO of a company gets on the elevator with you. The door closes and he introduces himself and asks you what you do? You know you don't have time for a long winded response, and do not want to babble or be stumped. You want to make a good impression; your window of opportunity has just opened…

What do you say? What should you say? How do you say it all in the 30 second elevator ride?

There are three main components to what you will say in your elevator pitch.

- First **state a problem** you recognize in your *industry*
- Second **identify your career or job goal as a solution** to the problem
- Third **restate the problem** and ask if they know of anyone who can use someone like you (Networking)

You have just identified a problem in your industry, identified you as a solution, and asked the CEO/President of a company if he or she knows of anyone who can use someone like you.

Here is how it works:

When someone asks what you do, say...

"You know how the *food service industry* has been **(state a problem)** - well what I do is **(state your career or job goal as a solution)**. That's why I'm so excited about this field; I've been studying this issue for several years now and just graduated with a degree in.... Do you know anyone in the industry that might need help with **(restate the problem)**?"

Examples:

You know how the *food service industry* has been **struggling to maintain profitability because of our challenging economy**? - Well, what I do is show restaurant owners **how to streamline their operations** and squeeze every penny they can out of their marketing budgets so they can maintain their profitability and of course, stay in business. Do you know anyone in the *food service* world that could use a little more **efficiency and profitability**?

You know how a lot of companies these days are really being **forced to do a lot more with a lot fewer people**? Well what I've been studying for the last few years in my *management program at Ashford University is business leadership*. I've studied the best and worst examples of business leadership in their breakthrough program and I've learned a lot about leadership from some of the greatest business minds in the country. Do you know anyone who is looking for someone with **business AND leadership skills**?

You know how **marketing budgets are the first thing to get axed when budgets get tight**? Well, what I do is show business owners some of the most innovative *marketing* tactics I've learned during my two year intensive course work at A.U. Did you know they are the leading school on the west coast for_____? Do you know anyone who would like to **increase their marketing results and still lower their overhead**?

You know how our *healthcare system* seems to be in such **chaos right now with all the new rules and laws and changes in the marketplace**? Well what I've been doing for the last four years is studying *healthcare systems as a part of my management degree* from AU. It's been a tough program because they have such high caliber faculty with a lot of experience in healthcare. I now have some amazing insight into the healthcare crisis and I'm glad to say I know there's a lot we can do to fix it. Do you know of anyone in the *healthcare field* that might be **looking for some fresh and innovative solutions**?

You know how military vets are coming home from around the world and many of them have not been able to find the right kind of work they need? Well, what I do is teach veterans how to build a stronger resume and make a solid first impression so they have a better chance of getting their foot in the door. I learned how to do this while *studying HR and Management* at AU. Do you know of anyone looking for an **inspiring HR person to join their team**?

You know how the *higher education* industry has been **struggling with accommodating online students**? Well, what I do is empower online students to feel as connected to the university as they would in a traditional campus setting by treating each student as an individual. I researched the importance of faculty/staff interaction and its positive impact on student persistence and retention during my Master's program. Do you know of anyone in the *higher education* community who might be **looking for a positive addition to their staff**?

Professional Summaries

Professional summaries are a brief description of your experiences, credentials, qualifications, goals, values, and strengths that best describe you as a professional.

The professional summary is often used in different situations where the audience does not have your resume to refer to, such as at a presentation. You can use a professional summary to give a quick overview of traits you feel the hiring manager or recruiter may want to know. The professional summary would be the next step after the initial 30 second elevator pitch.

Professional Summary examples

I am an **Internet Marketing Manager** professional with **15 years' experience** in the Internet industry and have extensive experience with **SEO, SEM, and website development**. I bring a background developing new Internet business brands and strategies. Recently, I have just completed a **Master of Business Administration degree** I am looking to taking on the **increased responsibility** of creative branding strategies at the **Director level** within your company.

Hi my name is John. I am completing my **Bachelors of Arts in Organizational Management** here at Ashford University. For the past **five years**, I have worked in the **food service industry** in a **management role** where I was able to reduce costs and increase revenues. I am looking for **increased management roles as a district manager** where I can **improve** productivity and increase profitability.