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Computer-Aided Tools in Negotiation: Negotiable Issues, Counterfactual Thinking, and Satisfaction

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Computer-Aided Tools in Negotiation: The Relationship Between Number of Negotiable Issues, Counterfactual Thinking, And Negotiator Satisfaction

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Abstract: This study explores how information technology can influence negotiator satisfaction. Prior research found that the disconnect between objective economic outcomes and negotiator satisfaction was a function of the number of negotiable items [20]. The more negotiable items involved, the better the objective outcome, but also the more items involved, the more dissatisfied negotiators feel about the outcome. This lessened sense of satisfaction stems from the increased cognitive complexity posed by dealing

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

with more negotiable items; this complexity, in turn, results in more opportunities for thoughts about how the outcome might have been different (counterfactual thoughts). Our research found that the use of information technology to reduce the cognitive complexity of a negotiation also reduces counterfactual thoughts about better possible outcomes. As a result, the use of this technology may improve overall negotiator satisfaction while maintaining desirable economic outcomes.

Keywords: Negotiation, counterfactual thinking, satisfaction, support system

Introduction

Negotiations research has identified both economic and social-psychological outcomes as important elements in a successful negotiation. Economic outcomes consider the opportunity to maximize the objective allocation of negotiation resources, and social-psychological outcomes are the subjective perceptions of the negotiating parties [23]. The general practice to increase the economic outcomes from a negotiation is to bring as many issues to the negotiation table as possible [5], [17], [28]. The more negotiable issues available, the greater the opportunity to find integrative potential by trading issues based on the different preferences of the parties. Despite the potential economic advantages of having multiple issues to negotiate and trade, a stream of research suggests that a disconnect exists between the economic outcomes from a multiple-issue negotiation and the satisfaction of the negotiators with the achieved outcomes [12], [15], [18], [20]. The negotiators frequently examine the economic outcomes in a post hoc manner by considering what could have occurred relative to what actually occurred. Such thoughts about alternative possible outcomes -- which can be both positive and negative in nature -- are called "counterfactual thoughts" [14], and these thoughts are the keys to a sense of satisfaction. Thoughts of better possible outcomes tend to lower feelings of satisfaction, but thoughts of worse possibilities result in increased levels of satisfaction [18], [25].

Negotiators who deal with larger numbers of negotiable issues are more likely to have counterfactual thoughts about how the deal could have been better. In particular, Naquin [20] found that negotiators with more issues to negotiate actually had more upward counterfactual thoughts (i.e., thoughts about how the outcome could

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

have been better), resulting in less satisfaction with the deal. These lessened feelings of satisfaction existed even when multiple issues increased the objective economic payoff. The disconnect here is that the negotiators who get the best deals may also feel the worst about the outcomes.

In short, a paradox seems to exist. Although the leveraging of multiple issues may lead to better objective outcomes in a negotiation, individuals may feel subjectively worse afterward because of the increased number of issues in the putatively successful negotiation. This is important because such feelings of dissatisfaction have the potential to significantly affect how the parties interact with each other after the negotiation. This, in turn, can influence future relationships and the desire for future negotiations with that partner [22], [23]. Because negotiations characterize so many aspects of business life [12], an interesting research question that arises, then, is how to better manage multiple-issue negotiations so as to achieve the optimal integrative potential they offer while also enhancing post-negotiation satisfaction. This study addresses this question. Our goal is to contribute to the literature by exploring how the use of information technology may result in better management of the counterfactual thoughts triggered by multiple-issue negotiations and subsequent post-negotiation satisfaction. We begin with a brief review of theory related to counterfactual thoughts and cognitive complexity. The benefits of integrating information technology for negotiation support are then briefly examined. Hypotheses are presented that examine the influence of information technology on counterfactual thoughts and post-negotiation satisfaction. Results from an experimental negotiation are presented, followed by a summary of our conclusions and implications of our findings for future research.

Cognitive Complexity and Counterfactual Thoughts

Logically, negotiations with few negotiable issues are relatively straightforward because the relationships between the issues can be more easily deduced mentally without the need for assistance. For example, a negotiation with only two or three negotiable issues may involve a systematic evaluation of multiple proposals until the optimal (integrative) solution is found. Such systematic processing allows the

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

negotiators to thoroughly understand all the available information and develop specific reasons for their decisions [2]. With fewer issues to manage, it is relatively easy to cognitively examine the issues from alternative viewpoints, weighing the pros and cons of each potential position. Thus, when decisions are made, they are made with relative certainty.

This is not necessarily the case in negotiations characterized by multiple issues. In complex, multi-issue negotiations, effectively managing information and the relationships that exist between issues is a more cognitively complex process and one that can result in information overload [1], [7]. Further, the more cognitive complexity involved, the greater the need to find mechanisms to effectively manage information, either by relying on heuristics for decision making or by integrating some form of information technology [6]. On the one hand, negotiators frequently find it useful to rely on decisional heuristics that draw on knowledge structures developed from their past experiences [8], [9]. Learning acquired in past negotiations, however, is often difficult to apply, even for experienced negotiators [9]. And, the use of heuristics can adversely affect the quality of decisions and optimal conflict resolution when judgmental biases develop and influence strategic outcomes [26]. Although they demand less cognitive effort for decision making, heuristics may also cause greater uncertainty about the accuracy of the outcomes [1], [4]. For example, a recent study demonstrated that when the number of negotiable issues doubled (e.g., from four to eight), mentally sorting out which issues could be logrolled for optimal outcomes became significantly more cumbersome when a mental-based systematic strategy was used [20]. Here, although participants in the eight-issue condition negotiated objectively better in terms of economic outcomes than those in a four-issue situation, they reported significantly less satisfaction with the outcomes gained in the negotiation [20]. Having more issues available for negotiation resulted in negotiators reporting significantly more counterfactual thoughts about how the outcomes might have been better (i.e., negative counterfactual thoughts) than negotiators who had fewer issues for negotiation. This resulted in less overall satisfaction with the negotiation, despite having secured objectively better outcomes. Realistically, although most skilled negotiators are instructed in how to expand the size of the "pie" in negotiations, the choices that exist with multiple options may actually

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

reduce their overall satisfaction because of increases in counterfactual thinking about other possible outcomes [20]. We propose that the use of information technology is one alternative to reliance on heuristics to aid complex cognitive processes involved in managing multiple issues in a negotiation. Our next section reviews this stream of literature.

Counterfactual Thoughts and Information Technology

If cognitive complexity associated with multiple issues in a negotiation increases the degree of counterfactual thinking to the detriment of negotiator satisfaction, then one plausible means to reduce the likelihood of such thoughts would be to reduce the cognitive complexity of the negotiation. One way to do this is by using a tool based on information technology. A growing body of research extending back to the 1970s details the use of computer-based support systems. This research investigated a variety of specific negotiation support systems (NSS), a detailed discussion of which lies beyond the scope of the present paper [16]. The paradigm of cognitive fit suggests the use of effective and efficient tools for problem solving correspond to the task requirements [13]. The tools need not be complicated, though, as even relatively unsophisticated modes of data presentation (e.g., tables or textual forms) enable decision-makers to recall values and compare data more accurately and with greater satisfaction than without such aids [13], [19]. Furthermore, it is generally agreed that an effective negotiation process also involves socio-technical systems; essentially, effective negotiations involve both people and software systems [16]. According to Kersten and Lai [16]:

> Software can be used as a simple or complex tool. It can support one or more negotiators; it can support a coalition and perform one or many negotiation activities on behalf of the negotiator. Software may be used as a negotiation facilitator or a mediator (p. 558).

Recent negotiations research has focused on the human element of negotiator satisfaction, and, has been called "one of the most important measures of information systems success" ([30], p. 282). Whether considering negotiation issues such as first-offer positions [12], regret reduction [27], pre-negotiation expectations and post-

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

negotiation satisfaction [3], or any other human element of a negotiation, there is little disagreement that electronic negotiation systems (ENSs) are useful for efficiently and effectively helping individuals evaluate alternative proposals, deals, and outcomes. Such systems allow a decision to be made more easily because alternative outcomes can be evaluated with greater certainty, and better or worse possibilities can be considered within the context of the proposed deal at hand. This simplifies the negotiation by providing negotiators with a tool that can be used to systematically sort through the intricate relationships in complex multi-issue negotiations. Still relatively unknown, however, is the effect of information technology on satisfaction levels in multiple-issue negotiations in which negotiators tend to report less overall satisfaction with the negotiated outcomes when there are more issues to negotiate. We seek to contribute to the literature by examining the effect of simple information technology on counterfactual thinking and negotiator satisfaction in cognitively complex multiple-issue negotiations.

Naquin [20] found that having more issues available in a negotiation increased the cognitive complexity of the negotiation, allowing for a greater likelihood of generating thoughts about how the negotiation might have been different. These counterfactual thoughts subsequently led to reduced satisfaction. We argue that using a negotiation aid, even a relatively simple one, is likely to reduce the cognitive complexity involved in multiple-issue negotiations. This, in turn, is likely to result after the negotiation in fewer thoughts about better outcomes.

Therefore, we offer the following hypothesis.

> *Hypothesis 1: Negotiators using an information-based negotiation aid that assists in decision making will have fewer counterfactual thoughts about a better negotiated outcome than negotiators without such an aid.*

Because negotiators using an information-based aid are hypothesized to have fewer frustrating counterfactual thoughts of better possible outcomes, we argue that they are also likely to be more satisfied. Previous work has linked counterfactual thinking with feelings of dissatisfaction [18], [25]. More recently, Galinsky, et. al. [11] found that because of the activation of counterfactual thoughts, negotiators experienced a decrease in satisfaction regardless of the objective value

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

of their negotiated agreement. In addition, in their review of empirical research on the role of affect in negotiations, Thompson, Wang and Gunia [29] reported that negotiators' satisfaction with the objective outcomes of the negotiation are dependent on where they focus their attention when making comparisons (e.g., on the target price or the BATNA -- the best alternative to a negotiated agreement). Logically, information technology should allow individuals to compare a greater variety of payoff possibilities than would be possible without such technologies. Consistent with this research, we argue that when negotiators' ability to compare potential outcomes is enhanced with an information-based tool, they will report greater satisfaction with the objective outcome they negotiated than those negotiators who did not use such a tool.

Therefore, we offer the following hypothesis.

> *Hypothesis 2: Negotiators using an information-based negotiation aid that assists in decision making will be more satisfied with their negotiated outcome than those without such an aid.*

Research Design

Methods

Seventy-four full-time graduate-level business students participated in the study as part of a negotiation class assignment. Being a classroom assignment, there was no economic payoff for participants. However, incentives were based in large part on personal pride during the debrief, as individual payoffs were displayed to the class as a whole after the negotiation was completed. The experimental design was a fully crossed two (four negotiable issues/eight negotiable issues) by two (negotiation aid/no negotiation aid). All negotiation pairs were randomly selected and randomly assigned to one of the four conditions. All participants were instructed that they were to negotiate the contents of an employment package. Individuals were randomly assigned the role of either a recruit or a recruiter. One week before the actual negotiation all participants received a package of materials containing confidential instructions and a computer memory device. Participants were informed in their

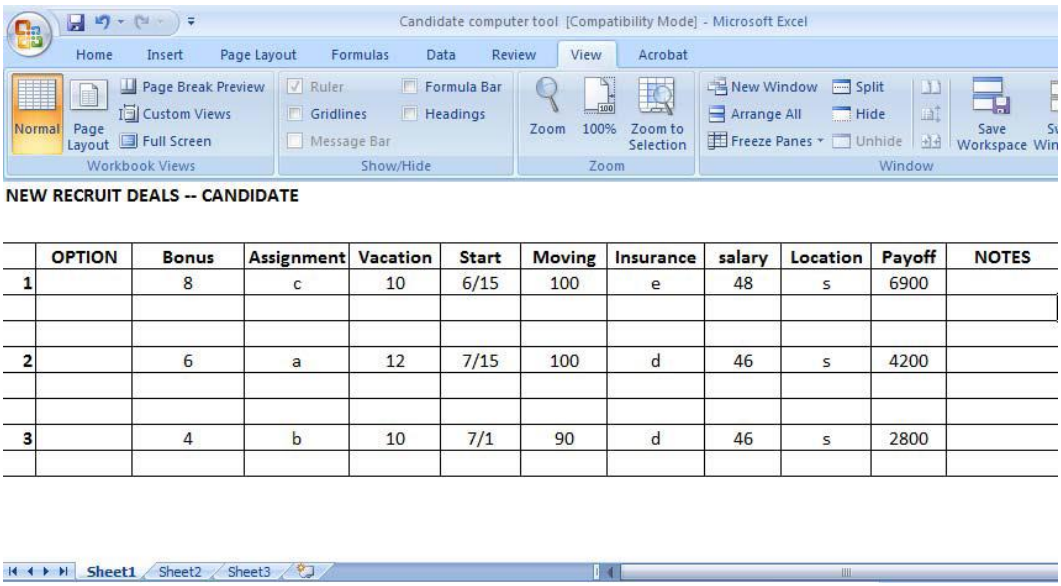
Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

confidential instructions that their role in the negotiation assignment was provided on the enclosed memory device and that they were to print their role information before negotiating. The negotiation task was entitled "New Recruit" [21].

The time for the negotiation was limited to a maximum of 40 minutes so as to be consistent with the Naquin (2003) study. The participants were instructed to negotiate either four (n = 19 dyads) or eight issues (n = 18 dyads) of an employment package, based on the manipulation to which they were randomly assigned[1]. The payoffs were as follows: two issues were purely distributive (i.e., one person's gain comes at the other's loss), two issues were purely compatible (i.e., both parties wanted the same thing), and four issues had optimal logrolling potential (see Appendix A). This was accomplished by structuring the issues so that both conditions negotiated the four issues with logrolling potential. The remaining four issues that were not negotiated in the four-issue condition (the distributive and compatible elements) were stated as being standard for all new hires. The payoff for these issues was split between the two parties. For both conditions, all negotiable alternatives had explicitly defined payoffs ranging from a maximum payoff of 13,200 points to the impasse payoff, in which both parties got 2200 points. The maximum joint gain was 13,200 points. In both conditions, participants were instructed that their goal was to maximize their payoff.

In addition, the confidential instructions informed those in the negotiation aid condition (n = 18 dyads) that their memory device also contained an Excel spreadsheet that provided a table graph tool by which they could evaluate alternative deals (see Figure 1). The spreadsheet was designed so that participants could enter the specific alternatives for each of the issues under consideration (i.e., the potential employment package) and in return, their individual payoff for that particular deal was automatically calculated and displayed. Participants were instructed that they were to use this tool during the negotiation to ascertain their current position relative to other possible packages. Immediately after completion of the negotiation, participants turned in their outcomes and completed a questionnaire.

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.



	OPTION	Bonus	Assignment	Vacation	Start	Moving	Insurance	salary	Location	Payoff	NOTES
1		8	c	10	6/15	100	e	48	s	6900	
2		6	a	12	7/15	100	d	46	s	4200	
3		4	b	10	7/1	90	d	46	s	2800	

Figure 1. Negotiation Tool

Dependent Variables

All dependent variables were identical to those in the previous study by Naquin [20], with the exception that the time to complete the negotiation was not measured. This exception was because in earlier work, time was not found to have a significant relationship to any of the dependent variables of interest. Dependent variables measured included participants' individual and dyadic-level economic outcomes, degree of counterfactual thoughts about how the outcome could have occurred differently, overall satisfaction with the agreed upon outcome, perceived performance quality, and relational satisfaction.

Objective Outcomes. Upon completion of the negotiation, participants turned in their outcomes. From this outcome sheet, objective outcomes were analyzed at two levels: the dyadic-level, as measured via the joint monetary outcomes of the parties, and the individual level, as measured by their individual economic payoff.

Counterfactual Thoughts. After the negotiation and the submission of their outcome sheets, participants completed a post-negotiation questionnaire. To confirm the extent to which individuals had counterfactual thoughts, they answered the following question in order to rate the extent to which they had thoughts about how the situation could have turned out differently:

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

> *Many times in a situation as this, people contemplate how things could have been different. They sometimes think, "if only 'x' had happened, then things would have been better," or "at least 'y' did not happen, or things would have been worse." Do any such thoughts occur to you when thinking of this negotiation? Specifically, to what extent do you have thoughts about how this negotiation could have occurred differently?*

Participants' degree of counterfactual thoughts were recorded on a scale of 1 ("Thoughts of worse possible outcomes") to 7 ("Thoughts of better possible outcomes") with the midpoint being 4 ("No such thoughts").

Satisfaction. Post-negotiation satisfaction was measured across three types of negotiator satisfaction: (1) satisfaction with the negotiated outcome, (2) perceived quality of their performance, and (3) relational satisfaction. First, overall satisfaction with the outcome was measured by participants' responses to "How satisfied are you with the negotiated outcome?" Responses were recorded on a Likert scale ranging from 1 (not satisfied at all) to 7 (very satisfied), with the midpoint of 4 representing "indifferent." Participants reported the perceived quality of their performance by responding to the following question: "How well do you think you performed in this negotiation compared to others also playing your role? I did better than _____ % of the others playing my role." Lastly, relational satisfaction was measured by the response to the following: "Based upon your experience in this negotiation with the other side, to what degree are you willing to have future dealings (i.e., negotiations) with them. Please give your response on a scale of 1 to 100 with 1 being 'not at all' and 100 being 'without hesitation.'"

Results

The following analyses were conducted at the dyadic level unless otherwise noted. Because no differences were found for role assignment on the dependent variables, we collapsed the data across the two roles. The means among variables by experimental condition are shown in Table 1.

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

Table 1
Variable Means by Experimental Condition

	4 Issues		8 Issues	
Variable	With Aid	No Aid	With Aid	No Aid
Individual Payoff	5532.27	4430.56	5667.73	4757.44
Joint Outcome	11350.22	9475.56	11049.78	9820.44
Counterfactual Thoughts	2.83	5.11	4.71	5.63
Outcome Satisfaction	5.47	4.21	4.99	4.01
Performance Quality	0.68	0.49	0.56	0.37
Relational Satisfaction	54.41	44.52	50.59	41.48

To investigate the dynamics that produced outcome effects, we first compared all dependent variables across each of the four experimental conditions. The results of this MANOVA indicated a main effect for the number of negotiable issues manipulation, $F(5, 29) = 4.9$, $p < .01$, and a main effect for the negotiation aid manipulation, $F(5, 29) = 5.16$, $p < .01$. The interaction between the two manipulations was not significant, $F(5, 29) = 1.83$, ns.

Counterfactual Thoughts

In examining the results related to Hypothesis 1, counterfactual thoughts were found to be a function of whether or not a negotiation aid was present. Specifically, as predicted by Hypothesis 1, a 2 x 2 ANOVA conducted on the measure of counterfactual thinking revealed a main effect in which negotiators provided with a negotiation aid reported fewer counterfactual thoughts about how the negotiated outcome could have occurred differently ($M = 3.77$, $SD = 1.31$) than those who did not have such an aid ($M = 5.37$, $SD = 1.51$), $F(1, 33) = 11.75$, $p < .001$. The results also show that the interaction term was significant: $F(1, 33) = 7.30$, $p < .01$ (see Figure 2). This suggests that the use of a negotiation aid had a greater influence in reducing counterfactual thoughts in the 4-issue condition than in the 8-issue condition.

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

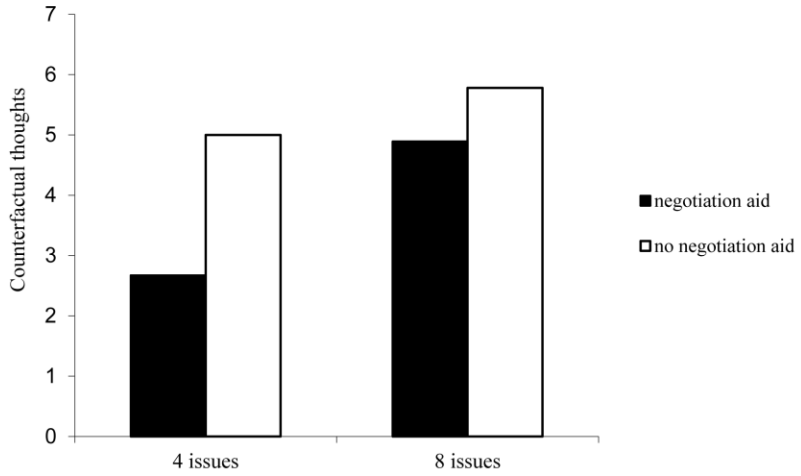


Figure 2

Negotiator Satisfaction

Satisfaction with the outcome. As predicted by Hypothesis 2, negotiators who used a negotiation aid were more satisfied than those who did not use one. Participants provided with a negotiation aid, even one as straightforward as a table graph provided by the Excel program, reported being more satisfied with their negotiated outcome ($M = 5.23$, $SD = 1.19$) than those without such an aid ($M = 4.11$, $SD = 1.03$), $F(1, 33) = 22.69$, $p < .001$. This satisfaction was significantly correlated with the degree of counterfactual thinking ($r = -.51$, $p < .001$) but, replicating prior research, was not significantly correlated with individual economic payoff ($r = .15$, ns) or joint outcome ($r = .13$, ns) [18], [25]. The interaction term was also not significant, $F(1, 33) = .05$, ns.

Perceived performance quality. Perceived performance quality was also found to depend upon the presence of a negotiation aid. Participants who used the negotiation aid reported greater confidence in the quality of their performance ($M = .62$, $SD = .22$) than those without the aid ($M = .43$, $SD = .16$), $F(1, 33) = 8.45$, $p < .01$. Furthermore, perceived performance was significantly correlated

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

with the degree of counterfactual thinking ($r = -.32$, $p < .01$), but was not correlated with individual economic payoff ($r = -.08$, ns) or joint outcome ($r = .09$, ns). The interaction term for this measure was not significant, $F(1, 33) = .15$, ns.

Relational satisfaction. Finally, participants who had a negotiation aid also reported a greater desire for a future relationship with the opposing party ($M = 52.5$, $SD = 13.23$) than those without such an aid ($M = 43.0$, $SD = 12.61$), $F(1, 33) = 5.10$, $p < .05$. As mentioned above, significant correlation with the degree of counterfactual thinking ($r = -.27$, $p < .05$) also occurred, but neither individual economic payoff ($r = .14$, ns) nor joint outcome ($r = .20$, ns) was significantly correlated. The interaction term for this measure was also not significant, $F(1, 33) = 1.48$, ns.

Looking at the three satisfaction measures on the whole, participants who used a negotiation aid were more satisfied than those who did not use one. Therefore, Hypothesis 2 is supported.

Economic outcomes

How did the manipulations influence objective economic outcomes? Similar to earlier studies, no differences were found in objective economic outcomes between those who participated in the four-issue or eight-issue negotiations for individual payoffs, $F(1, 70) = .40$, ns, or joint outcomes, $F(1, 33) = 3.0$, ns. Recall that the four- and eight-issue conditions were designed to be economically equivalent; hence, this lack of difference between the conditions was expected. However, negotiators who used a negotiation aid had better individual outcomes ($M = 5600$, $SD = 1974$) than those who did not ($M = 4594$, $SD = 2127$), $F(1, 70) = 4.32$, $p < .05$. And they also had better joint outcomes ($M = 11200$, $SD = 1620$) than those who did not use a negotiation aid ($M = 9198$, $SD = 1483$), $F(1, 33) = 15.52$, $p < .001$. Given that the maximum joint gain was 13,200 points, the efficiency of the negotiations can also be examined. Those who used a negotiation aid reached 84.84% efficiency in obtaining the maximum possible points while those without an aid were only 69.68% efficient. The interaction terms between manipulations were not significant for either individual payoffs, $F(1, 70) = .23$, ns, or joint outcomes, $F(1, 33) = .815$, ns.

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

Discussion and Conclusions

Our research addresses the tension that exists between objective economic outcomes in negotiations and negotiator satisfaction. Prior research suggests that the two are not necessarily linked. In particular, previous research established that the number of negotiable issues is an important factor in integrative negotiations, allowing for better objective economic payoffs. However, negotiators who deal with more issues tend to generate more counterfactual thoughts regarding better alternative possible outcomes. This can lead to a frustrating sense of reality about what could have been and may result in the negotiators having reduced levels of satisfaction. Our study suggests that two key negotiation objectives--integrative opportunity and negotiator satisfaction--are not necessarily at odds with each other. Instead, our results suggest that in complex multi-issue negotiations, the use of a computer-based aid that assists in decision making reduces the degree of subsequent frustrating counterfactual thoughts and increases negotiator satisfaction.

On whole, the findings from this study support the prediction that having a computer aid, even a relatively simple one, to sort through cognitively complex issues in a negotiation reduces the degree to which participants have counterfactual thoughts about better possible outcomes. Consequently, negotiators who used a computer aid also reported being more satisfied than those who did not use one. The use of information technology essentially allowed for the best of both worlds regarding complex multiple-issue negotiations and satisfaction levels. That is, a relatively simple computerized aid not only enhanced the ability to take advantage of the economic benefits resulting from having multiple issues to negotiate, but also stimulated greater feelings of satisfaction about the deal.

These findings extend existing research on counterfactual thoughts and post-negotiation satisfaction by examining one mechanism negotiators can use to reduce some of the cognitive complexity inherent in multiple-issue negotiations. Instead of relying on heuristics or simplifying rules to compensate for their cognitive limitations [9], use of a simple, accessible information technology tool enabled relatively inexperienced negotiators to effectively analyze various alternative solutions and their individual payoffs. No special training or experience was needed to use the software, unlike other,

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

more complicated negotiation support systems (NSS). Although the sophisticated software systems found in most NSS can be useful in reducing the time and effort required to prepare for a negotiation, Wang, Lim and Guo [30] found that most negotiators valued control over the process and outcomes. In fact, negotiators in their study tended to ignore suggestions made by the sophisticated software in favor of their own solutions, and they reported more satisfaction when allowed more individual control throughout the negotiation process. This is consistent with Remus' [24] findings in which individuals who are provided outcome feedback (via alternative solution data provided by the table data) are able to make more consistent, satisfactory decisions. In other words, although elaborate technologies designed to automate the majority of the negotiation process exist, negotiators seek more control and consistency over the negotiation process [30]. Our study finds that even simple technologies (like the one employed in this study) may also contribute to greater negotiator satisfaction - perhaps because of the straightforward, negotiator-controlled payoff data they yield. Certainly, our results suggest negotiators who use information technology are more satisfied with their results than negotiators who do not. However, future empirical research is needed to empirically explore the potential differences in negotiator satisfaction relative to counterfactual thoughts across the various types of NSS, including history graphs and/or dance graphs [13].

As with any study, we acknowledge several limitations. First, we note that single item measures for both satisfaction and counterfactual thinking were used. Future studies in this area should employ more robust measurements such as multi-item measures of a construct where the validity can be more comprehensively assessed. Counterfactual thoughts may also be coded by open-ended questions as to thoughts about the outcome with no potential prompting of alternative realities. Also, this experiment was limited to a class exercise with only personal pride at stake. Future research could investigate whether the results can be replicated with additional incentives, including monetary consequences.

Although using information technology in multiple-issue negotiations helps reduce the cognitive complexity of decision scenarios, we are not suggesting that it is the only remedy to reduce upward counterfactual thoughts. For example, individuals who are

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

experts about the issues and/or commodities being negotiated may process information with less cognitive difficulty than individuals who lack such expertise. Such expertise may provide greater confidence about the outcome, thereby also reducing counterfactual thoughts of better possible outcomes. Future research is needed to investigate such scenarios. In addition, the interaction effect suggests that while counterfactual thoughts are reduced among negotiators using a computerized decision-making aid, it may have varying degrees of effectiveness as the number of issues increase. In particular, our study found a larger reduction in counterfactual thoughts in the (simpler) 4-issue negotiation than in the (more difficult) 8-issue negotiation (see Table 2). Future research should investigate the degree of diminished counterfactual thoughts in negotiations that are even more complicated. Finally, this study did not examine the causal relationships that may exist between multiple-issue negotiations, counterfactual thoughts, and satisfaction. Instead, our objective was to establish empirical support for the influence of information technology in reduction of counterfactual thoughts during multiple issue negotiations and enhancement of post-negotiation satisfaction. To do so, we applied experimental controls to isolate the effects of information technology. Additional research is needed to investigate causality.

Are the findings reported here limited to just negotiation contexts? Although the present study focused solely on a negotiation context, we believe our findings have the potential to be extended to numerous decision-making domains in which choices among multiple issues are an important factor. There are many contexts in which having a choice among multiple alternatives is associated with opportunity. This preference is perhaps most clearly evident within our growing Internet-oriented society, in which one if its hallmark advantages is often proclaimed to be increased access to options. Whereas a decade ago computer purchases were limited to the fixed choices in nearby electronics stores, today one has the opportunity to customize a computer by choosing among numerous bundle options in hardware and software options--all in one-stop shopping over the Internet. Having such a choice among multiple options may be widely linked to increased opportunity, but, as the present research suggests, opportunity of choice among multiple options does not necessarily imply increased satisfaction. The results here offer hope for this

Journal of Organizational Computing and Electronic Commerce, Vol. 24, No. 4 (2014): pg. 297-311. DOI.

extrapolated context, because data sorting tools are becoming increasingly popular due to the overwhelming popularity of the Internet (e.g., as stock selectors, phone plan evaluators, etc.). Generally speaking, decision-making aids are fast becoming essential tools for reducing frustrating counterfactual thoughts and increasing satisfaction about the choices we make and the outcomes we reap. Therefore, even relatively simple technology can yield important benefits.

In summary, using simple table graphs, such as those provided by Excel spreadsheet software, not only aid negotiators in improving integrative negotiation behaviors, but they help in reducing counterfactual thoughts that can negatively affect future negotiations. When negotiators were able to reduce the cognitive complexity involved in multiple-issue negotiations, fewer negative emotions were expressed and negotiators were more satisfied with their outcomes.

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Appendix A

Payoff Matrix in New Recruit Case

Issue	Options	Recruiter (points)	Candidate (points)
Bonus	10%	0	4000
	8%	400	3000
	6%	800	2000
	4%	1200	1000
	2%	1600	0
Job Assignment	Division A*	0	0
	Division B	-600	-600
	Division C	-1200	-1200
	Division D	-1800	-1800
	Division E	-2400	-2400
Vacation Time	25 days	0	1600
	20 days	1000	1200
	15 days	2000	800
	10 days	3000	400
	5 days	4000	0
Starting Date	June 1	0	2400
	June 15	600	1800
	July 1*	1200	1200
	July 15	1800	600
	August 1	2400	0
Moving Expenses Coverage	100%	0	3200
	90%	200	2400
	80%	400	1600
	70%	600	800
	60%	800	0
Insurance Coverage	Plan A	0	800
	Plan B	800	600
	Plan C	1600	400
	Plan D	2400	200
	Plan E	3200	0
Salary	$90,000	-6000	0
	$88,000	-4500	-1500
	$86,000*	-3000	-3000
	$84,000	-1500	-4500
	$82,000	0	-6000
Location	San Francisco *	1200	1200
	Atlanta	900	900
	Chicago	600	600
	Boston	300	300
	New York	0	0

*These issues were constant in the 4 issue condition

Notes:

1([1]) The New Recruit case in its original form has eight issues that are unknown to the participants. The original eight-issuecondition was used, with a modified version developed for the four-issue condition, as in Naquin's [20] original study. The modified case was adjusted to have four issues, yet remained objectively equivalent from an individual payoff standpoint to that of the eight-issue condition. That is, participants' potential payoffs were equivalent whether negotiating eight or four issues.

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