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SPECIAL COLLECTION: TECHNOLOGY IN A TIME OF SOCIAL DISTANCING

The Role of Digital Channels in Predicting Objective and Subjective Negotiation Outcomes

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Today's hiring and workplace communications are increasingly occurring in the digital space, a trend accelerated by the coronavirus disease (COVID-19) pandemic. In two preregistered experiments and an internal meta-analysis, we test the subjective and objective impact of two digital channels—video and synchronous text—that are popularly used in today's workplace contexts. In doing so, we isolate the role that richness of digital channels plays in influencing negotiation outcomes while holding synchrony constant. Specifically, we predicted that negotiating via video (vs. synchronous text) will foster better integrative outcomes and improve negotiators' subjective outcomes. Results indicated that negotiating via video, compared to synchronous text, improved subjective outcomes such as satisfaction with the negotiation process, satisfaction with negotiation outcomes, favorable impressions about one's negotiation partner, and willingness to negotiate with the same partner again in the future. Contrary to our predictions, we did not observe significant improvements in objective negotiation outcomes (i.e., integrative outcomes) as a result of negotiating via video (vs. synchronous text), suggesting the possibility that the influence of digital channels on negotiations is primarily perceptual. We discuss implications of our findings for research on negotiations, the psychology of technology, and the future of work.

Keywords: digital medium, negotiations, COVID-19, technology-mediated interactions

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The coronavirus disease (COVID-19) pandemic has engendered a drastic shift from in-person to technology-mediated interactions, a transition that has important implications for critical workplace outcomes. Pandemic-driven unemployment numbers that rose to around 30 million during its peak (Rosenberg, 2020) and estimates that nearly 4 million new graduates from Spring 2020 will enter the workforce (National Center for Education Statistics, 2020) suggest that job negotiations will primarily occur through technology-mediated interactions via tools such as video conferencing, synchronous text chat, and email rather than in-person for the foreseeable future. Furthermore, several companies including Google and Microsoft recently announced plans to be remote-work-friendly for the foreseeable future, with some even making permanent their workers' ability to "work from home" (Lerman & Greene, 2020). In other words, it will likely become the "new normal" for workplace interactions—no matter how trivial or important—to take place virtually, making it ever more important to understand whether and how digital channels of communication affect workplace outcomes.

Noting the likely rise in the number of digital negotiations, we investigate whether and how two prevalent forms of digital media—video chat and text-based chat—influence negotiation outcomes, especially those that require people to establish interpersonal ties. These two digital channels are synchronous forms of communication

widely used in organizations. However, video conveys richer information such as one's voice and facial expressions. In negotiations, such contextual information likely influences both objective negotiation outcomes that depend on establishing interpersonal ties (i.e., integrative outcomes) and subjective experiences of negotiators. Thus, in two preregistered experiments with MBA students, we investigate whether and how video (vs. synchronous text) causally impacts objective and subjective negotiation outcomes.

Our findings indicated that negotiating via video, compared to synchronous text, improved subjective outcomes related to negotiators and their partners, such as satisfaction with the negotiation process, satisfaction with negotiation outcomes, favorable impressions about one's partner, and willingness to negotiate with the same partner again in the future. Contrary to our predictions, however, we did not observe significant improvements in objective negotiation outcomes as a result of digital medium type—even those that would need higher levels of cooperation to yield positive outcomes—suggesting the possibility that the influence of digital channels on negotiations is primarily perceptual.

Through our findings, we contribute to extant research on negotiations in the following ways. First, by holding synchrony constant, we isolate the impact that richness of communication channels has on negotiation outcomes. By doing so, we address the call for examining the individual impact of richness and synchrony (Swaab et al., 2012) and thus deviate from prior research that has largely confounded these two aspects of communication channels. We also deviate from prior research on communication channels that had largely focused on group performance tasks in which participants are aware of the importance of cooperation by studying their impact on objective and subjective negotiation outcomes in which the importance of cooperation is more ambiguous. Second, we also extend existing literature on negotiations by documenting the impact of communication channels on subjective negotiation outcomes. In doing so, we join the burgeoning focus on negotiation outcomes beyond objective, economic ones (Curhan et al., 2006, 2009). Third, by comparing the effectiveness of new types of technology-mediated workplace interactions, we expand the current understanding of the psychology of technology (Fast & Schroeder, 2020; Schroeder & Epley, 2015, 2016). Finally, studying these two digital channels have practical implications, given the rise in the number of new users of instant chat and digital meeting platforms like Slack, Zoom, and Skype that enable both video-based and text-based chat (Pesce, 2020; Sherr, 2020; Warren, 2020). As modern-day workplace interactions continue to be technology-mediated, understanding the different ways in which technological capabilities modulate workplace outcomes is becoming increasingly critical. While our data were collected during the COVID-19 pandemic, our findings will likely continue to be timely and informative as modern-day workplace interactions continue to be transformed by technology.

Digital Channels in Negotiation

Prior research suggests that negotiators can achieve positive outcomes when they create shared norms for behavior, such as sharing information and demonstrating cooperative intent (e.g., McGinn & Keros, 2002). Beyond factors such as interpersonal ties (e.g., friendship) and personality traits (Barry & Friedman, 1998), the channels through which negotiation occurs may also affect negotiation outcomes (McGinn & Croson, 2004; McGinn & Keros, 2002; Olson & Olson, 2000). For

instance, while channels that strip away visual and verbal cues engender expectations of distrust and dishonesty (Valley et al., 1998), those that allow people to see and hear one another (e.g., face-to-face interactions) might reinforce interpersonal norms and encourage coordination (Brosig et al., 2003), rapport-building (Drolet & Morris, 2000), and trust-building (Moore et al., 1999). After all, people rely on verbal and visual information to judge others during interactions (Afifi, 2007; Ames et al., 2011; Hall & Schmid Mast, 2007) and not receiving immediate social feedback from one's interaction partner makes gauging them particularly challenging (Ramirez et al., 2002). Thus, there seems to be a general scholarly consensus on the notion that negotiations occurring face-to-face are superior to other channels such as email and audio.

But, what exactly do face-to-face negotiations offer above and beyond other communication channels? Channels through which communications occur broadly center on two dimensions: richness (i.e., conveying visual and auditory information) and synchrony (i.e., providing feedback in real time; e.g., Swaab et al., 2012). We note that many comparisons in negotiations research that have sought to differentiate the effects of digital channels in negotiations have an important limitation: the comparisons they make have not disentangled the unique role of each of these dimensions but have rather covaried the two dimensions. For instance, Naquin and Paulson (2003) compared negotiations occurring face-to-face to email and found that the former elicits greater trust between the negotiators. Similarly, Valley et al. (1998) found that negotiators are more likely to reach agreements in face-to-face interactions than in written bargaining.

We sought to address this important limitation by comparing video and synchronous text that allow negotiators to communicate synchronously but vary in the amount of richness that is conveyed. Notably, a handful of papers that did attempt to isolate the effect of richness by holding synchrony constant limited their exploration to group performance tasks where participants were initially aware of the importance of cooperation for maximizing joint performance outcomes. For instance, Laughlin et al. (1995) compared the effects of face-to-face versus computer-mediated chat on group problem-solving skills, while Carey and Kacmar (1997) and Li (2007) compared the same channels on group task productivity and final term group project performance (a winter survival task), respectively.

Through our investigation, we aim to offer more nuanced insights into the psychological functions of synchronous video and text channels on negotiation outcomes by systematically examining the role of richness while holding synchrony constant. As we theorize in the next section, we expect that richness in communication can benefit objective and subjective negotiation outcomes that rely on social and informational cues.

Digital Channels and Negotiation Outcomes

Integrative issues in negotiations where parties have different priorities and may not prioritize the same issues in the same order require parties to disclose information about their priorities in order to attain beneficial outcomes (Barry & Friedman, 1998; De Dreu & Carnevale, 2003). However, attaining beneficial outcomes in integrative negotiations requires overcoming common motivational (i.e., egoistic vs. prosocial motivations) and cognitive barriers (i.e., adopting a loss vs. gain frame when conceptualizing outcomes) by seeking, processing, and sharing information effectively (Trötschel et al., 2011; Trötschel & Gollwitzer, 2007). Through such efforts, parties may be able to concede on low-priority issues

for gains on high-priority issues, thereby enhancing their overall outcomes by "expanding the pie." Studies show that sharing information that reveal preference structures is important for identifying areas of mutual gain (Thompson, 1990; Thompson & Hastie, 1990).

Communication channels that do not transmit rich social information could lead to mistrust and greater competitive behavior, thwarting information sharing necessary for negotiating successfully on integrative issues. For instance, individuals are more likely to behave competitively and display hostile behavior when visually anonymous (Rosette et al., 2012; Stuhlmacher & Citera, 2005). Perceived anonymity also lowers one's sympathy and willingness to be generous toward one's interaction partner (Nadler & Shestowsky, 2006). On the other hand, visual cues might encourage a feeling of perceived certainty of information that one is gathering about their partner, leading to more tailored suggestions when negotiating (Thompson & Hrebec, 1996). Moreover, visual information can also provide access to useful social cues (Swaab et al., 2012), thus allowing parties to more effectively uncover underlying interests (Carnevale & Isen, 1986). In line with these findings, Swaab et al. (2009) showed that being able to monitor others' ideas and feelings leads negotiators to exclude one another less in multiparty negotiations, while Graetz et al. (1998) showed that visual cues enable individuals to make more accurate assessments about their partner. Thus, digital channels that transmit richer information could facilitate information sharing necessary for attaining higher outcomes on integrative issues. Formally:

> *Hypothesis 1*: Negotiating via video (vs. synchronous text) will improve individual outcomes on integrative issues.

While there is a relative lack of attention paid to subjective negotiation outcomes, a growing number of scholars are emphasizing the importance of studying negotiators' psychological experiences as they may better predict negotiators' future behaviors than objective, economic outcomes (e.g., Curhan et al., 2006, 2009). In fact, there are reasons to believe that richness of information provided by communication channels can improve the subjective quality of interpersonal relationships. For example, being able to see others in social interaction can enhance perceived familiarity, which can, in turn, foster social connection, closeness, and even trust (e.g., Beckes et al., 2013; Leary et al., 1994). Recent work has also shown that speech-based communication channels allow people to perceive others as having greater mental capacity, while removing such cues can lead to an increased likelihood of dehumanizing others (Schroeder & Epley, 2015, 2016; Schroeder et al., 2019).

In negotiation contexts, seeing one's partner can influence negotiators' subjective experiences, including perceptions about the negotiation process, the negotiation outcome, and one's negotiation partner. As noted earlier, richness of information might foster a feeling of knowing one's partner (Thompson & Hrebec, 1996), increase perceived credibility of one's partner (Citera et al., 2005), and improve trust even in the absence of prior close relationships between negotiation partners (Moore et al., 1999). Prior research also highlights that people are more likely to be honest where they can see their negotiation partners in face-to-face negotiations (Valley et al., 1998)—which can, in turn, enhance negotiators' subjective experiences. Building on these findings, we contend that negotiating via video (vs. synchronous text) will improve subjective negotiation outcomes:

> *Hypothesis 2a*: Negotiating via video (vs. synchronous text) will improve satisfaction with and enjoyment of the negotiation process.

> *Hypothesis 2b*: Negotiating via video (vs. synchronous text) will improve satisfaction with negotiation outcomes.

As preregistered, we also explore how negotiating via video will influence other subjective outcomes related to partner assessments and willingness to negotiate again with the same partner.

Overview of Studies

We tested our predictions in two preregistered experiments (https://aspredicted.org/cg5vu.pdf; https://aspredicted.org/blind.php?x=b6js3n). We assessed objective outcomes based on predefined point schedules and subjective outcomes using a post-negotiation survey. Data for Experiments 1 and 2 were collected in April and November 2020, respectively. Our materials, preregistration, and data are available via the Open Science Framework (Raveendhran et al. (2021)). This research was approved by the Institutional Review Board for Social and Behavioral Sciences at the University of Virginia (Protocol Number: 3602).

Experiment 1

Method

Participants

For Experiment 1, we recruited 132 ($M_{\text{age}} = 28.36$; 34.1% females) full-time MBA students who were enrolled in a negotiations course. Sample size was constrained by class size. Participants were randomly paired and asked to complete a multi-issue employment negotiation exercise—the "New Recruit" negotiation (Neale, 1997; see the Supplemental Materials for more details). Within each pair, participants were randomly assigned to one of two roles: recruiter or candidate.

Materials and Procedure

We manipulated negotiation medium at the pair level. Each negotiating pair was randomly assigned to one of two conditions: synchronous text and video chat. Participants in the synchronous text (video chat) condition were asked to negotiate exclusively via Zoom's chat function (Zoom's video call function). At the end of the negotiation, participants reported outcomes and completed a post-negotiation survey.

The New Recruit negotiation requires pairs to negotiate job offer details for a new employee. One person in each pair plays the role of the recruiter, while the other plays the role of the candidate. Pairs are required to negotiate eight issues with five different options for each issue. The eight issues include salary, start date, bonus, moving expense, vacation, insurance, job assignment, and location. Of these eight issues, two are distributive issues where parties have opposite preferences—in this case, for salary and start date. Four are integrative issues where parties value outcomes differentially—bonus and moving expenses (which are valued more by the candidate) and insurance and vacation (which are valued more by the recruiter). Finally, two are compatible issues where parties have the same preference (location and job assignment). In this negotiation, the

recruiter and the candidate have their own point schedules that explicitly highlight their relative preferences within and between issues (see the Supplemental Materials for a detailed description of the point schedules for recruiters and candidates).

Objective Outcomes. We measured total points scored at the individual level for integrative issues using the point schedule outlined in the New Recruit negotiation exercise (see the Supplemental Materials). In addition, we also measured total points earned at the individual level.[1]

Subjective Outcomes. We measured participants' satisfaction and enjoyment with the negotiation process and outcome using the following items adapted from prior research (e.g., Curhan et al., 2009): "How satisfied are you with the way the negotiation went?"; "How satisfied are you with the negotiation outcome?"; and "How much did you enjoy the negotiation process with your partner?" on 7-point scales.

Exploratory Measures. For exploratory purposes, we asked the following questions to measure participants' perceptions about their negotiation partner: "What was your overall impression of your partner?" (1 = *very negative*; 7 = *very positive*) and "How much did you like your partner?" (1 = *not at all*; 7 = *very much*). We also assessed their perceived willingness to negotiate again with the same partner: "How much would you want to negotiate again with your partner?" (1 = *not at all*; 7 = *very much*). Additionally, we assessed participants' perceptions of their own and their partner's cooperation during the negotiation using two items adapted from Schroeder et al. (2019). Participants were asked to report on perceptions of their own cooperation: "What was your negotiation strategy?" (1 = *very competitive*; 7 = *very cooperative*) and "How open were you with your partner about your true underlying interests in the negotiation?" (1 = *not at all open*; 7 = *very open*), $r = .29, p = .001$. They were also asked to report their perceptions of their partner's cooperation: "What was your partner's negotiation strategy?" (1 = *very competitive*; 7 = *very cooperative*) and "How open do you think your partner was with you about their true underlying interests in the negotiation?" (1 = *not at all open*; 7 = *very open*), $r = .47, p < .001$. Participants also reported the extent to which they could read their partner: "To what extent did you feel as though you could read your partner's thoughts and emotions?" (1 = *not at all*; 7 = *very much*).

Results

Objective Outcomes

We tested Hypothesis 1 by conducting a linear mixed-model analysis using team ID as the subject variable to account for potential group-level differences, medium type (text vs. video), role type (recruiter vs. candidate), and their interaction term as the independent variables for points earned for integrative issues. We note that these analyses allow us to compare the mean integrative outcomes for participants assigned to the synchronous text condition versus the video condition at the individual level while controlling for pair assignments (e.g., Kim et al., 2021). In doing so, we examined our hypothesis that those participants assigned to the video condition will, on average, have higher integrative outcomes compared to the average integrative outcomes of participants assigned to the synchronous text condition. Results indicated that there was not a significant difference on total points earned on

integrative issues between those who negotiated via video ($M = 6,660, SD = 1,436.24$) versus synchronous text ($M = 6,581.48, SD = 1,288.13$), $F(1, 110) = 3.07, p = .08, d = .33$.[2]

We also conducted a linear mixed-model analysis using team ID as the subject variable to account for potential group-level differences, medium type (i.e., text vs. video), role type (i.e., recruiter vs. candidate), and their interaction term as the independent variables on individuals' total points earned across all issues. Results indicated that there were no significant differences on individual total points earned across all issues (integrative, distributive, and compatible) between those who negotiated via video ($M = 6,050, SD = 2,246.01$) versus synchronous text ($M = 5,914.81, SD = 2,091.62$), $F(1, 110) = .98, p = .33, d = .19$. Controlling for the extent to which participants indicated they knew their partner before the negotiation revealed consistent results for all analyses reported here.[3]

Subjective Outcomes

We tested Hypotheses 2a and 2b by conducting linear mixed-model analyses on the subjective outcomes we assessed (i.e., satisfaction with negotiation process, enjoyment, satisfaction with negotiation outcome), using team ID as the subject variable, medium type (i.e., text vs. video), role type (i.e., recruiter vs. candidate), and their interaction term as the independent variables. Results revealed that participants in the video condition (compared to those in the synchronous text condition) were more satisfied with the negotiation process ($M_{video} = 5.16, SD = 1.48$ vs. $M_{text} = 4.40, SD = 1.50$), $F(1, 127) = 4.33, p = .04, d = .37$, and also enjoyed the negotiation process with their partner more ($M_{video} = 5.94, SD = 1.37$ vs. $M_{text} = 5.00, SD = 1.64$), $F(1, 127) = 9.96, p = .002, d = .56$. There was not a significant main effect of medium type on satisfaction with the negotiation outcome ($M_{video} = 4.56, SD = 1.32$ vs. $M_{text} = 4.21, SD = 1.45$), $F(1, 127) = 3.31, p = .07, d = .32$.

As preregistered, we also explored whether medium type significantly affects perceptions of (and feelings toward) one's partner. There was a significant main effect of medium type such that those in the video condition reported more positive impressions of their partner ($M = 6.14, SD = .92$) than those in the synchronous text condition ($M = 5.61, SD = 1.37$), $F(1, 127) = 7.21, p = .008, d = .48$. Participants in the video condition also reported that they liked their partner more than those in the synchronous text condition ($M_{video} = 6.19, SD = 1.01$; $M_{text} = 5.61, SD = 1.45$), $F(1, 127) = 4.09, p = .045, d = .36$. There was not a significant difference between conditions on participants' willingness to negotiate again with the same partner in the future, ($M_{video} = 5.78, SD = 1.33$ vs. $M_{text} = 5.33, SD = 1.48$), $F(1, 127) = 2.75, p = .10, d = .29$.

While we did not preregister the analyses for perceived levels of cooperation, we also decided to explore whether medium type influenced these perceptions, given the differences in subjective experiences and impressions of partner by medium type. Conducting the same set of analyses revealed that there were significant

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[1] Due to sample size concerns, we do not formally report distributive, compatible, and joint outcomes (i.e., the sum of recruiter's points and candidate's points).

[2] All effect sizes for linear mixed models we report here are calculated from the parameter estimates of fixed effects.

[3] Nine teams (18 participants) failed to reach a deal (7 teams in the synchronous text condition and 2 teams in the video condition); thus, we did not have their data for these analyses.

differences in perceptions of cooperation across medium type. First, there was a significant main effect of medium type, such that those in the video condition reported more cooperation when assessing their own behaviors during the negotiation ($M = 4.95$, $SD = 1.02$) than those in the text condition ($M = 4.25$, $SD = 1.13$), $F(1, 127) = 4.23$, $p = .04$, $d = .37$. There also was a significant main effect of medium type on perceptions of partner's cooperation, such that those in the video condition perceived their negotiation partner as more cooperative ($M = 4.55$, $SD = 1.22$) than those in the synchronous text condition ($M = 3.98$, $SD = 1.16$), $F(1, 127) = 4.39$, $p = .038$, $d = .37$. Finally, those in the video condition felt they could read their partner's thoughts and emotions better ($M = 4.44$, $SD = 1.15$) than those in the synchronous text condition ($M = 3.54$, $SD = 1.51$), $F(1, 127) = 19.82$, $p < .001$, $d = .79$. See the Supplemental Materials for role type effects.

Follow-Up Analyses on Information Exchanged During Negotiation

We also analyzed the content of the negotiation conversations (through chat logs and video transcripts) in Experiment 1 to explore whether differences in negotiators' behaviors and the information they exchanged during negotiation may underlie our effects.[4] Specifically, we examined whether there were systematic differences in information sharing that might (a) signal cooperation and (b) pertain to preference inquiry. Two independent coders who were blind to our predictions coded all the chat logs and video transcripts in Experiment 1 to assess differences in two categories: explicit signals of cooperation and preference inquiry.

Explicit Signals of Cooperation. Two independent coders who were blind to our predictions reviewed each of the chat logs and video transcripts to code for explicit signals of cooperation that negotiators displayed during the negotiation. The coders independently coded each negotiation either a "0" (explicit signals of cooperation absent) or a "1" (explicit signals of cooperation present). That is, if negotiators showed explicit signs indicating their willingness to cooperate with their counterparts, those interactions were coded "1" (e.g., "I'm willing to compromise"; 0 = absent; 1 = present). After independently coding each negotiation, the coders resolved any discrepancies through discussion.

The two coders initially disagreed on 7 out of the 64 interactions (7.8%) and resolved them through discussion. To examine whether there were systematic differences in explicit signals of cooperation between the video and synchronous text conditions, we conducted a chi-square test at the team level. Results revealed that 87.1% of the teams in the video condition displayed explicit signals of cooperation (compared to 54.5% in the synchronous text condition), $\chi^2(1, N = 64) = 8.11$, $p = .004$, $r = .36$.

Preference Inquiry. The two independent coders who were blind to our predictions coded each of the chat logs and video transcripts for direct inquiries about preferences by either party during the negotiation. The coders independently coded each negotiation either a "0" (preference inquiry absent) or a "1" (preference inquiry present). For example, if negotiators directly asked their counterparts about their preference in any of the categories they were negotiating on, those interactions were coded "1" (e.g., "What is important to you?"; 0 = absent; 1 = present). Once again, after

independently coding each negotiation, the coders resolved any discrepancies through discussion.

The two coders initially disagreed on 2 out of the 64 interactions (3.1%) and resolved them through discussion. Results of a chi-square test to examine systematic differences in preference inquiry revealed that there was not a significant difference between conditions: In the video condition, 80.6% of the teams engaged in preference inquiry behaviors (compared to 60.6% in the synchronous text condition), $\chi^2(1, N = 64) = 3.08$, $p = .08$, $r = .22$.

Experiment 2

Method

Participants

For Experiment 2, we recruited 120 full-time MBA students ($M_{age} = 29.19$; 35.8% females) who were enrolled in a negotiations course. Sample size was constrained by class size. Similar to Experiment 1, participants were randomly paired and asked to complete a multi-issue employment negotiation exercise—the "New Recruit" negotiation (Neale, 1997; see the Supplemental Materials for more details). Within each pair, participants were randomly assigned to one of two roles: recruiter or candidate.

Materials and Procedure

Similar to Experiment 1, we manipulated negotiation medium at the pair level. Each negotiating pair was randomly assigned to one of two conditions: synchronous text and video chat. Experiment 2 was identical to Experiment 1 in its design, manipulation, and measures with one exception. Participants in Experiment 2 were also asked to either negotiate exclusively via Zoom's chat or video call function, but those in the chat function were asked to engage as if they were communicating via email. Critically, synchrony was held constant while richness was systematically varied between the two conditions in both experiments. Similar to Experiment 1, participants completed the New Recruit negotiation. Following the negotiation, participants reported outcomes and completed a post-negotiation survey at the end of the negotiation on the same objective and subjective outcome measures as Experiment 1.

Results

Objective Outcomes

We conducted a linear mixed-model analysis using team ID as the subject variable to account for potential group-level differences, medium type (text vs. video), role type (recruiter vs. candidate), and their interaction term as the independent variables for points earned for integrative issues. There were no significant differences on total points earned on integrative issues between those who negotiated via video ($M = 6,425$, $SD = 1,532.23$) versus synchronous text ($M = 6,270$, $SD = 1,522.85$), $F(1, 92) = .84$, $p = .36$, $d = .19$.

We also conducted a linear mixed-model analysis using team ID as the subject variable to account for potential group-level

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[4] We thank an anonymous referee for this suggestion.

differences, medium type (i.e., text vs. video), role type (i.e., recruiter vs. candidate), and their interaction term as the independent variables on individuals' total points earned across all issues. Once again, as in Experiment 1, there were no significant differences on total points earned across all issues (integrative, distributive, and compatible) between those who negotiated via video ($M = 5,803.57$, $SD = 2,312.18$) versus synchronous text ($M = 5,490$, $SD = 1,999.46$), $F(1, 92) = .40$, $p = .53$, $d = .13$. Controlling for the extent to which participants indicated they knew their partner before the negotiation revealed consistent results for all analyses reported here. Thus, these results did not offer support for Hypothesis 1.[5]

Subjective Outcomes

We conducted the same set of analyses on the subjective outcomes (i.e., satisfaction with negotiation process, enjoyment, satisfaction with negotiation outcome), as we did for the objective outcomes. Participants in the video condition (compared to those in the synchronous text condition) were more satisfied with the negotiation process ($M_{video} = 4.88$, $SD = 1.55$ vs. $M_{text} = 3.98$, $SD = 1.77$), $F(1, 109) = 8.20$, $p = .005$, $d = .55$ and also enjoyed the negotiation process with their partner more ($M_{video} = 5.45$, $SD = 1.77$ vs. $M_{text} = 4.11$, $SD = 1.72$), $F(1, 109) = 13.07$, $p < .001$, $d = .69$. Moreover, there was a significant main effect of medium type on satisfaction with the negotiation outcome ($M_{text} = 4.41$, $SD = 1.56$ vs. $M_{video} = 3.80$, $SD = 1.66$), $F(1, 109) = 6.81$, $p = .01$, $d = .50$.

Furthermore, there was a significant main effect of medium type such that those in the video condition reported more positive impressions of their partner ($M = 5.84$, $SD = 1.17$) than those in the synchronous text condition ($M = 5.27$, $SD = 1.55$), $F(1, 109) = 8.13$, $p = .005$, $d = .55$. Participants in the video condition also reported that they liked their partner more than those in the synchronous text condition ($M_{video} = 5.76$, $SD = 1.33$ vs. $M_{text} = 5.29$, $SD = 1.54$), $F(1, 109) = 7.59$, $p = .007$, $d = .53$. There was also a significant difference between conditions on participants' willingness to negotiate again with the same partner in the future, such that participants in the video condition reported higher willingness to negotiate again with the same partner compared to those in the synchronous text condition ($M_{video} = 5.40$, $SD = 1.31$ vs. $M_{text} = 5.05$, $SD = 1.53$), $F(1, 109) = 4.05$, $p = .047$, $d = .39$.

As in Experiment 1, we also explored whether medium type influenced perceptions of cooperation, given the differences in subjective experiences and impressions of partner by medium type. Results revealed that, while directionally consistent with those of Experiment 1, there were no significant differences between conditions when reporting the extent of their own cooperation during the negotiation ($M_{video} = 4.72$, $SD = 1.33$ vs. $M_{text} = 4.15$, $SD = 1.16$), $F(1, 109) = 2.46$, $p = .12$, $d = .30$. However, there was a significant main effect of medium type on perceptions of partner's cooperation, such that those in the video condition perceived their negotiation partner as more cooperative ($M = 4.69$, $SD = 1.21$) than those in the synchronous text condition ($M = 3.88$, $SD = 1.27$), $F(1, 109) = 17.81$, $p < .001$, $d = .81$. Finally, those in the video condition felt they could read their partner's thoughts and emotions better ($M = 4.74$, $SD = 1.26$) than those in the synchronous text condition ($M = 2.89$, $SD = 1.65$), $F(1, 109) = 35.80$, $p < .001$,

$d = 1.15$. Role type effects are reported in the Supplemental Materials.

Follow-Up Analyses on Information Exchanged During Negotiation

Similar to Experiment 1, we also analyzed the content of the negotiation conversations through chat logs and video transcripts to explore differences in negotiators' behaviors and the information exchanged during negotiation. Once again, we examined whether there were systematic differences in information sharing related to explicit signals of cooperation and preference inquiry.

Explicit Signals of Cooperation. Similar to Experiment 1, two independent coders who were blind to our predictions reviewed each of the chat logs and video transcripts and coded each negotiation either a "0" (explicit signals of cooperation absent) or a "1" (explicit signals of cooperation present). After independently coding each negotiation, the coders resolved any discrepancies through discussion. The two coders initially disagreed on 2 out of the 59 interactions (3.3%) and resolved them through discussion. Results of a chi-square test revealed that 90% of the teams in the video condition displayed explicit levels of cooperation (compared to 13.8% in the synchronous text condition), $\chi^2(1, N = 59) = 34.34$, $p < .001$, $r = .76$.

Preference Inquiry. Similar to Experiment 1, two independent coders who were blind to our predictions coded each of the chat logs and video transcripts and coded each negotiation either a "0" (preference inquiry absent) or a "1" (preference inquiry present). Once again, after independently coding each negotiation, the coders resolved any discrepancies through discussion. The two coders initially disagreed on 1 out of the 59 interactions (1.7%) and resolved it through discussion. Results of a chi-square test revealed that 73.3% of the teams in the video condition engaged in preference inquiry behaviors (compared to 10.3% in the synchronous text condition), $\chi^2(1, N = 59) = 23.95$, $p < .001$, $r = .64$.

Internal Meta-Analysis

To overcome potential sample size concerns in our individual experiments, we conducted a series of internal meta-analyses by using correlation coefficients as our effect sizes. Specifically, we used partial correlations obtained from a linear mixed-model analysis using team ID as the subject variable, medium type as the independent variable, and role type as a covariate (Aloe & Thompson, 2013). Regarding the results of follow-up analyses, we calculated bivariable correlations based on the chi-square test results. As both experiments adopted similar research designs, we conducted all of our meta-analyses using a fixed effects model in which the mean effect size (i.e., mean partial correlation) was weighted by sample size (Goh et al., 2016). We used the *metafor* package in R (Viechtbauer, 2010).

Table 1 presents the results of the internal meta-analyses. We did not find support for Hypothesis 1. The relation between medium type and individuals' points earned for integrative issues was not significant, $r_p = .04$, $p = .57$, 95% PI [−.10, .18], nor the relationship

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[5] Twelve teams (24 participants) failed to reach a deal (10 teams in the synchronous text condition and 2 teams in the video condition); thus, we did not have their data for these analyses.

Table 1

Internal Meta-Analysis Results

Description	Integrative	All points	Satis process	Enjoy process	Satis outcome	Partner impress	Liking partner	Nego again	Self coop	Partner coop	Read partner	Explicit coop	Inquiry
Exp 1	.03	.03	.24	.29	.13	.22	.22	.16	.31	.23	.32	.36	.22
Exp 2	.05	.08	.27	.37	.20	.21	.16	.12	.22	.31	.54	.76	.64
Overall	.04	.05	.26	.34	.16	.22	.20	.14	.28	.28	.45	.68	.52
p value	.57	.44	<.001	<.001	.01	<.001	.001	.02	<.001	<.001	<.001	<.001	<.001
95% CI	−.10, .18	−.08, .19	.14 .38	.22, .45	.04, .29	.10, .34	.08, .32	.02, .27	.16, .39	.16, .39	.35, .55	.58, .78	.39, .64

Note. Exp = experiment; Integrative = integrative outcomes; All points = total points earned across all issues; Satis process = satisfaction with negotiation process; Enjoy process = enjoyment of process; Satis outcome = satisfaction with negotiation outcome; Partner impress = positive impression of partner; Liking partner = liking of partner; Nego again = willingness to negotiate again with the same partner in the future; Self coop = perceived one's own cooperativeness; Partner coop = perceived partner's cooperativeness; Read partner = readability of partner's thoughts and emotions; Explicit coop = explicit signals of cooperation; Inquiry = preference inquiry.

between medium type and individuals' total points earned across all issues, $r_p = .05$, $p = .44$, 95% PI [−.08, .19]. However, supporting Hypotheses 2a and 2b, we found that negotiating via video (vs. synchronous text) led to greater satisfaction with the negotiation process, $r_p = .26$, $p < .001$, 95% PI [.14, .38], greater enjoyment of the negotiation process, $r_p = .34$, $p < .001$, 95% PI [.22, .45], and greater satisfaction with the negotiation outcomes, $r_p = .16$, $p = .01$, 95% PI [.04, .29].

Finally, we also found significant relationships between medium type and all of our exploratory variables. Specifically, negotiating via video (vs. synchronous text) resulted in more positive impressions of one's partner, $r_p = .22$, $p < .001$, 95% PI [.10, .34], greater liking of one's partner, $r_p = .20$, $p = .001$, 95% PI [.08, .32], and greater willingness to negotiate again with the same partner, $r_p = .14$, $p = .02$, 95% PI [.02, .27]. Those who negotiated via video (vs. synchronous text) also reported that they were being more cooperative during the negotiation, $r_p = .28$, $p < .001$, 95% PI [.16, .39], their partners were being more cooperative during the negotiation, $r_p = .28$, $p < .001$, 95% PI [.16, .39], and they could better read one's partner's thoughts and emotions during the negotiation, $r_p = .45$, $p < .001$, 95% PI [.35, .55]. By integrating the results of the follow-up analyses based on the negotiation content coding, we found that those who negotiated via video (vs. synchronous text) showed more explicit signals of cooperation, $r = .68$, $p < .001$, 95% PI [.58, .78], and made more direct preference inquiries, $r = .52$, $p < .001$, 95% PI [.39, .64].

Post Hoc Bayesian Meta-Analysis[6]

To complement the conventional null hypothesis testing where a nonsignificant p value does not necessarily mean a support for null hypothesis, we conducted a Bayesian meta-analysis using JASP (Version 0.15; JASP Team, 2021) to quantify the evidence in favor of the null hypothesis (i.e., $r_p = 0$) in terms of objective negotiation outcomes (Wagenmakers et al., 2018). For total points earned on integrative issues, we found that the observed data are 11.31 times more likely to occur under the null hypothesis than under an alternative hypothesis ($BF_{01} = 11.31$). Similarly, for total individual points earned across all issues, we found that the observed data are 9.89 times more likely to occur under the null hypothesis than under an alternative hypothesis ($BF_{01} = 9.89$). Thus, we found that the effects of digital channel on objective outcomes are likely to be a null effect.

Summary of Results

In sum, our results from Experiments 1 and 2 suggest that negotiating via video (vs. synchronous text) can improve subjective outcomes. We could not conclude that medium type improves objective, economic outcomes—even those that would need higher levels of cooperation to yield positive outcomes. Furthermore, there were systematic differences in whether people explicitly signaled cooperation and inquired about preferences when negotiating via video versus synchronous text. Specifically, people were more likely to display explicit signals of cooperation when negotiating

[6] These analyses were not preregistered. We thank an anonymous referee for suggesting these post hoc analyses to quantify the evidence in favor of the null hypothesis for the objective negotiation outcomes.

via video relative to when negotiating via synchronous text. Similarly, people were also more likely to inquire about their negotiation counterpart's preferences when negotiating via video (vs. via synchronous text).

General Discussion

Across two preregistered experiments and an internal meta-analysis of the two experiments, we examined the impact of two digital channels—video and synchronous text—on objective and subjective negotiation outcomes. Negotiating via video, compared to synchronous text, improved subjective outcomes related to people's perceptions of the negotiation itself and their partner, such as satisfaction with and enjoyment of the negotiation process, satisfaction with the negotiation outcomes, and favorable impressions of their partner. Additionally, we also found that participants who negotiated via video (relative to synchronous text) were more willing to negotiate with the same partner again in the future. We also explored the role of digital channels on perceptions of cooperation and found that negotiating via video (vs. synchronous text) improved people's assessments of their own and their partners' cooperation during the negotiation. However, we did not observe significant effects of digital channels on the objective, economic outcomes we focused on in the two studies (i.e., integrative outcomes, individual total points earned). Finally, our findings also indicated that people are more likely to display explicit signs of cooperation and inquire about their counterpart's preferences when negotiating via video (vs. synchronous text). Thus, our findings highlight the possibility that the impact of video in negotiations may be primarily grounded in subjective assessments.

We make theoretical and practical contributions in the following ways. First, by holding synchrony constant, we isolate the impact that richness of communication channels has on negotiation outcomes. By doing so, we deviate from prior research that has largely confounded richness and synchrony. We also deviate from prior research on communication channels that had largely focused on group performance tasks in which participants are aware of the importance of cooperation by studying their impact on objective and subjective negotiation outcomes where the importance of cooperation is more ambiguous. At the same time, it is possible that synchrony plays a critical role in negotiations, thus explaining the lack of significant effects we observed in our experiments for objective outcomes, even those that require people to establish interpersonal ties. Thus, it would be important for future research to understand the relative effects of synchrony and richness on both objective and subjective negotiation outcomes. Indeed, if synchrony plays a more (or less) critical role relative to richness, it could lead to reduced (or pronounced) effects of richness on objective and subjective outcomes.

Second, we also extend existing literature on negotiations by documenting the impact of communication channels on subjective negotiation outcomes. In doing so, we join the burgeoning focus on negotiation outcomes beyond objective, economic ones. While objective outcomes are important, so are negotiators' psychological feelings about the negotiation process and their partner—often, they can serve as better predictors of negotiators' future behaviors than objective, economic outcomes (Curhan et al., 2006, 2010). Indeed, our findings suggest that even if there are no improvements on

objective economic outcomes accrued from negotiating via video, individuals may still want to reward the other party by continuing to engage in negotiations in the future, highlighting the importance of considering both types of outcomes when studying the role of communication channels in negotiations.

Relatedly, while prior research suggests that visual and auditory cues can be critical in facilitating information exchange, our findings suggest a possibility that richness of information primarily plays a role in subjective, rather than objective, outcomes. The lack of difference we find in objective outcomes is a deviation from the findings of Purdy et al. (2000), who uncover that visual and auditory cues afforded by video can improve objective, economic outcomes. This difference may be due to the drastic change we have observed in the workplace over the past 20 years, including the wide accessibility and adoption of videoconferencing platforms, increased internet connectivity worldwide, and, of course, the exogenous shock of the current health crisis that has forced many workers to adopt these technologies. At the same time, because we cannot interpret our study's nonsignificant findings for objective outcomes as evidence for the absence of an effect in objective outcomes, we note that future research should further validate whether the role of digital media in negotiations is simply illusory.

Furthermore, it is also possible that the role of richness in affecting subjective outcomes is moderated by negotiators' cognitive and motivational barriers (Trötschel et al., 2011; Trötschel & Gollwitzer, 2007) especially in the current COVID-19 context. For example, being embedded in the context of the current pandemic could more likely lead people to adopt a loss frame when thinking about the negotiation process and outcomes and this, in turn, could be exacerbated when they are negotiating via synchronous text and are unable to see one's partner. On the other hand, if people adopted a more prosocial motivational approach to negotiations in light of the current health crisis, they may be more motivated to behave in a prosocial manner when they are able to see their counterparts while negotiating on video chat. Thus, future research could systematically examine whether and how different digital channels impact common cognitive and motivational barriers to accomplishing mutually beneficial outcomes in negotiations.

Third, we contribute to a growing body of work on the psychology of technology. Building on prior work that has shown that speech-based (vs. text-based) communication channels can improve attributions of mental capacity and human-like qualities (e.g., Schroeder & Epley, 2015, 2016), we suggest that channels that can transfer richness of information can improve individuals' perceptions of the negotiation process and the relationship with their negotiation partner—factors that can affect long-term negotiation outcomes. Future research could explore interventions that negotiators can employ to overcome such negative perceptions resulting from negotiating via channels such as synchronous and asynchronous text.

Future research can also examine the role of digital channels on decision-making during negotiations. For example, it is possible that certain forms of digital media such as synchronous text are simply impediments to effective decision-making during negotiations. Indeed, recent research highlights three key challenges to effective decision-making, especially during crises: deliberating efficiently, deciding for common good, and persisting to implement decisions

(Thürmer et al., 2020). Applying this framework to the psychology of digital negotiations, it is possible that digital channels may differentially impact decision-making during negotiations. When people negotiate via digital channels that strip away contextual visual and auditory cues, they may be less able to efficiently integrate available information and update their actions when new information is available (i.e., inefficient deliberation). Moreover, it might become more challenging to pursue decisions for that might benefit both parties (i.e., decisions that prioritize the common good) when negotiators are unable to see each other and establish interpersonal connection with them. Finally, it is also possible that negotiators may find it hard to stick to their decision plans (i.e., persist in implementing their decisions) when they receive little holistic feedback from their negotiation counterparts about the impact of their negotiation decisions and actions. Thus, future research can test the impact of digital channels across different types of negotiation contexts and examine how digital channels might act as facilitators or impediments to negotiators' decision-making processes.

Finally, we inform the burgeoning area of research in human–computer interaction on negotiations through advanced technologies such as virtual agents (de Melo et al., 2011; Traum et al., 2008). Research on avatar-mediated communication suggests that, relative to text-based communication, communicating via virtual agents such as avatars allows for greater social presence, perceived intimacy, and emotion-based trust (Bente et al., 2008). Recent research also suggests that compared to face-to-face communication, virtual agents may enable psychological distancing in situations that trigger concerns about potential negative judgment (Raveendhran et al., 2020). While our research suggests that these effects are likely to be subjective, future research should compare the effectiveness of virtual agents to other digital channels such as the ones we explored in this research on both subjective and objective outcomes. Furthermore, it would be important to understand the conditions, if any, under which each of these digital channels is most likely to induce successful outcomes. For instance, it may be that for negotiations that are particularly conflict enhancing, negotiating via video rather than virtual agents could better induce interpersonal liking, thus resulting in better objective and subjective outcomes.

Because the current COVID-19 pandemic continues to prevent most face-to-face negotiation options for the foreseeable future—thus increasing workers' reliance on digital channels—our findings are also important from a practical perspective. For instance, individuals who have completed negotiating via text-based chat may feel dejected about their overall performance regardless of their actual performance. Indeed, during the negotiation debrief, one of the students in the synchronous text condition said, "I was blaming chat for [what I thought was] my poor performance yesterday." Relatedly, recent news on "Zoom fatigue" (Fosslien & Duffy, 2020) suggests the possibility that negotiators may insist on video-based interactions even if doing so may be more impractical and even costly. On the flipside, for recruiters seeking to improve the overall experience for recruits in the time of COVID-19, our findings suggest that simply utilizing video could foster a more welcoming context.

While our data were collected as a result of and during the COVID-19 pandemic, our findings will likely continue to be timely and informative as the modern-day workplace continues to undergo digital and technological transformations. That is, the changes to work brought about as a result of the COVID-19 pandemic are not necessarily idiosyncratic and temporary: instead, the pandemic is simply accelerating our reliance on novel digital technologies for conducting work and compressing the timeline for more permanent changes in this regard. Thus, though our work here is grounded in the COVID-19 context, the practical implications for digital negotiations should extend well beyond the crisis, into what becomes the new normal in the workplace.

Conclusion

As COVID-19 and the new normal accelerate us toward reliance on using a rich array of digital communication channels for interpersonal interactions, understanding the psychology of digital communication becomes ever more important. Our findings suggest that opening the aperture can yield powerful subjective experiences for those negotiating via different digital media.

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