Choose Your Own Adventure: Attachment Dynamics in a Simulated Relationship

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According to attachment theory, insecure individuals respond to events in their romantic relationships in ways that sometimes can be destructive. The objective of this research was to examine how these responses may accumulate over repeated interactions to influence the quality of the relationship. Across three studies, participants were presented with a "Choose Your Own Adventure" dating story in which they made choices based on their partners' behaviors. In each study we found that attachment styles predicted the kinds of choices participants made at the outset of and throughout the story. Additionally, relationship satisfaction was related to the choices participants made throughout the fictional narrative, even in situations in which the partner's behavior was the same for all participants.

Keywords: attachment theory; relationship satisfaction; close relationships; relationship attributions; decision making

In 1979, Random House, Inc., launched an innovative line of books called the Choose Your Own Adventure series. These books set the standard for a literary genre now known as "interactive fiction" (Montfort, 2003). With interactive fiction, the reader assumes the role of the protagonist and plays an active part in shaping the story's evolution. In a typical adventure, the reader encounters multiple decision points at which he or she must make a choice. For example, the reader may have just stepped into a room full of zombies and must decide whether to fight them or flee. If the reader chooses to fight the zombies, he or she is instructed to turn to page 81. If the reader decides to run away, he or she is instructed to turn to page 72. Depending on the choice the reader makes, he or she may go on to experience fame and fortune or a gory doom.

One of the unique features of interactive fiction is that the final narrative reflects not only the raw materials provided by the original author but also the idiosyncratic predispositions, inhibitions, and predilections of the reader. As such, the medium has the potential to be a valuable one for studying the kinds of issues that are of interest to social and personality psychologists. For example, attachment researchers have long been interested in how the representations people hold about close relationships shape the way they understand and react to interpersonal situations. Researchers have typically addressed this issue by asking participants to read ambiguous scenarios about interpersonal situations and then having them make evaluations or inferences about the intentions of their hypothetical partners. Research has consistently shown that insecure people are more likely than secure people are to construe relational events in a negative light (e.g., Collins, 1996) and that this effect occurs even when insecure and secure people are responding to the same objective event. One issue that has not been addressed in this kind of research, however, concerns the interactive nature of social encounters. An individual who construes another's actions negatively is likely to behave in a manner that may perpetuate the conflict that exists in the relationship. And although these encounters have the potential to lead to escalations in conflict, they also provide opportunities for people to assess what is happening and take steps to restore the state of the relationship. It is unclear from previous research whether insecure

individuals, if given the opportunity to experience the consequences of their actions, will come to learn from these mistakes and make better decisions during future interactions with their partners.

In the studies reported here, we constructed our own Choose Your Own Adventure–type stories to address questions about how attachment orientations influence the way interpersonal relationships unfold in the context of an iterative relationship and how these choices relate to the satisfaction people experience in their relationships. Specifically, we presented people with a computerized interactive dating narrative in which the reader had to choose between two options at important junctures in the story. One option was constructed to be relationship-enhancing (e.g., choosing to apologize for a misdeed); the other had the potential to undermine the quality of the relationship (e.g., choosing to criticize one's partner). At the end of the story, we asked readers to rate how satisfied they were with the fictional relationship. This unique method allowed us to determine how attachment orientations shaped the way people began the stories, how their choices evolved across the narrative, and how those dynamics influenced the satisfaction that they ultimately experienced in these fictional relationships. We begin this article by providing a brief review of attachment theory. Next, we explain the interactive fiction method in more depth and report three studies based on this procedure. Finally, we discuss the implications of our findings for attachment theory.

A BRIEF OVERVIEW OF ATTACHMENT THEORY

Attachment theory was developed by Bowlby (1969/1982) to explain the nature of the emotional bond that forms between infants and their primary caregivers. Bowlby hypothesized that this bond is a product of an innate motivational system, the attachment behavioral system, which functions to keep children in close proximity to their primary caregivers. According to Bowlby, the attachment system works by posing a simple question: Is the primary caregiver nearby and responsive? When the answer to this question is "yes," the child feels secure and is comfortable exploring his or her environment. When the answer is "no," the child experiences anxiety and is likely to exhibit attachment behaviors ranging from simple visual searching on the low extreme to active following and vocal signaling on the other. These behaviors continue until the individual is able to reestablish a desirable level of physical or psychological proximity to the attachment figure or until he or she becomes fatigued, as may happen in the context of a prolonged separation or loss.

According to the theory, the way the attachment system becomes calibrated for an individual depends on the quality of the interactions that take place between the child and his or her caregivers. When the child finds that his or her bids for comfort are met with sensitivity, the child develops a sense of security and is more likely to open up to and trust others. When the child's signals for comfort are consistently rebuffed, the child learns to withdraw from the caregiver during times of distress (see Ainsworth, Blehar, Waters, & Wall, 1978, for a detailed discussion). In short, based on his or her interactions with the caregiver, the child develops representations, or what Bowlby (1969/1982) called "working models," that are used to guide his or her behavior in subsequent interactions.

Although working models have their origins in early infant–caregiver relationships, attachment theorists assume that as children develop, their working models come to reflect the history of their experiences in close relationships with both parents and others. Moreover, whereas working models are thought to capture these experiences, they are assumed to mold them as well (Collins & Read, 1994). One way in which working models can influence the development of people's romantic relationships is by guiding the inferences that people make about the needs and intentions of their partners. People who have more positive views of others (i.e., highly secure people) tend to construe situations in more benevolent ways, whereas people who have more negative views of others (i.e., highly insecure people) tend to assume the worst from their partners. In a series of studies that demonstrate this point, Collins (1996) asked participants to imagine themselves in a dating relationship and to read and react to several scenarios, such as a situation in which one's partner wanted to spend an evening alone by himself or herself. People with secure working models (i.e., people who generally found it easy to get close to and depend on others) interpreted these kinds of events in a more positive light. Compared to insecure participants, they reported having more confidence in their partners and did not infer that their partners' behaviors were signs of rejection. In contrast, insecure individuals (i.e., people who were uncomfortable depending on and trusting others) interpreted the events more negatively. They attributed their partners' behaviors to problems in the relationship and made the inference that their partners were insensitive and unresponsive to their needs.

One of the important conclusions from Collins' (1996) research was that people do not respond to the same situations in similar ways and that part of this variation is due to individual differences in the working models that people hold. Faced with the same event, secure people are more likely than insecure people are to infer that their partners are ultimately dependable and responsive to their needs. This implies that people's working models lead them to interpret and understand events in ways that reinforce their expectations—a process that suggests that people may ultimately behave

in ways that lead them to confirm rather than disconfirm their assumptions about how relationships work.

ITERATIVE DILEMMAS

For better or for worse, research on attributions and expectations in romantic relationships has tended to focus on hypothetical scenarios that are static in nature. Because each scenario was independent of the others in Collins's (1996) studies, the attributions people made in one case were not relevant for the functioning of the relationship as a whole. This raises the question of how people would interpret and respond to relational events if they thought that their choices would have consequences.

Research on game theory suggests that the distinction between static and iterative scenarios can matter greatly for judgment and decision making (Axelrod, 1984). For example, in the classic prisoner's dilemma, participants are required to make a choice that involves cooperating with another player or defecting. According to the most common version of the game, neither player does well if both players choose to defect. If both players cooperate, they do well but not as well as one of them would if he or she were to defect while the other cooperated. The rational strategy is to defect in hopes that the other will cooperate. In single-trial versions of the prisoner's dilemma, players do sometimes defect rather than cooperate. However, when players anticipate interacting with the same player again, they tend to adopt different strategies. In the iterative prisoner's dilemma (i.e., a version of the game in which players repeatedly interact with one another), players often choose to cooperate with one another from the outset. Moreover, in situations in which players cooperate with one another for long periods of time, they tend to outperform other players who try to take advantage of the situation (Axelrod & Hamilton, 1981).

The important point is that the decisions people make in social exchanges differ depending on whether the exchange is a one-time affair or an iterative one that involves multiple interactions over time. This broad conclusion is compatible with findings based on previous research on close relationships. In a study conducted by Rusbult, Verette, Whitney, Slovik, and Lipkus (1991), participants were told to write an essay about a partner who engaged in behavior that was potentially destructive for the relationship and to explain how they would respond to this behavior. Participants who were told to ignore concerns for their partners' feelings and the future of the relationship gave responses that were more destructive than did participants not told to disregard these concerns. In other words, participants behaved in different ways depending on whether they thought their responses would have consequences for the relationship.

The distinction between one-trial interactions versus iterative interactions may be a critical one for understanding attachment dynamics. In the research to date, participants have often read scenarios that were unrelated to one another; in other words, the attribution or choice that a participant made in one trial was irrelevant for attributions and choices made in subsequent trials (e.g., Chappell & Davis, 1998; Collins, 1996). It seems plausible, however, that highly insecure people, although biased to assume the worst from others, may be less inclined to act on those assumptions if they know that their actions will have consequences for the long-term functioning of the relationship. Thus, although highly insecure people may be more likely to assume that their partners' desire to spend an evening alone reflects something negative about their partners' feelings toward them, they may not be likely to act on this inference given that doing so could potentially undermine the well-being of the relationship.

In short, taken to the logical extreme, current research on attachment suggests that highly insecure people should make an increasing number of detrimental choices over time. When faced with an ambiguous relational situation, their expectations lead them to assume the worst from their partners, a process that is likely to steer them toward unsatisfying relationships. Research to date, however, has not studied attributions and relationship choices in the context of an iterative procedure—in a coherent context in which the choices a person makes in one situation have the potential to shape the way in which the relationship evolves. The primary goal of this research was to use the unique medium of interactive fiction to more fully explain the impact of attachment orientations on choices made in romantic relationships, how those choices accumulate over time, and how they shape the way in which the relationship is experienced.

OVERVIEW OF THIS RESEARCH

In these studies, we developed a Choose Your Own Adventure–type story in which participants played the role of the protagonist in a dating relationship and were asked to make one of two choices at various junctures throughout the story. One of the choices was potentially beneficial for the relationship; the other was potentially detrimental.

Although the basic story was designed to be experienced like a true Choose Your Own Adventure story, we altered the format in a critical way for Studies 1 and 2. Specifically, the manner in which the story unfolded was actually independent of the choices made by the participants, thereby allowing us to study the way people's choices influenced their perceptions of the relationship independently of the "reality" of the situation.

This method allowed us to conduct a nuanced investigation into the ways in which attachment representations shape interpersonal choices both at the beginning of the interaction and throughout the evolving interaction. In Study 3, the partner's behavior was, in fact, influenced by the choices the participant made.

In Study 1, we hypothesized that highly insecure people would begin the story by choosing options that had the potential to be detrimental to the relationship. However, because their choices were situated within a larger narrative, it is unclear whether they would continue to make detrimental choices or begin to make more positive choices in time. Current research suggests that highly insecure people will make detrimental choices at each stage in the process, implying that either they will not learn from their mistakes or, even worse, make the relationship more troubled over time. If they are sensitive to the iterative nature of social interactions, however, then an alternative possibility is that insecure people, although starting off on the wrong foot, so to speak, will eventually recover and make an increasing number of positive choices over time.

In Study 2, we extended the basic procedure by manipulating the behavior of the simulated partner in a between-subjects design. Participants in one condition read a story in which their partner was generally supportive of their concerns. Participants in the other condition read a story in which their partner was generally cold, distant, and insensitive. The key question we sought to address was how people's choices would vary as a function of this manipulation and whether those choices would continue to be shaped by attachment orientations.

In Study 3, the choices the participant made influenced how the partner responded. If the participant chose the relationship-enhancing choice, the partner responded in a warm, supportive manner. If the participant chose the detrimental choice, the partner responded in an insensitive, unsupportive manner. We again sought to determine whether insecure individuals would be able to adjust their behavior to experience positive responses from their partners or if they would continue to make potentially harmful choices.

STUDY 1

Method

Participants. Five hundred fifty-nine people completed the study. The data were collected on the Internet through a Web study designed "to learn more about how personality and decision making affect romantic relationships." The study was hosted on the second author's Web site, www.yourpersonality.net, a site that contains a variety of Web studies and demonstrations

regarding personality, attachment, and close relationships. The site can be found via Web searches for free personality tests and receives approximately 100 visitors a day (although not all visitors participate in each study or exercise posted on the Web site). Research has demonstrated that studies conducted via the Internet are of "at least as good quality as traditional paper-pencil methods" and that the results "do not appear to be tainted by false data" (Gosling, Vazire, Srivastava, & John, 2004, p. 102). Additionally, the Internet allows for a more diverse sample than does the average subject pool. (For an in-depth comparison of Web-based samples and more commonly used undergraduate samples, please see Gosling et al., 2004.) Of participants, 64% were from the United States, 8% were from the United Kingdom, and 7% were from Canada. The remaining participants were from other countries. The median age of participants was 24 years ($M = 28.3$, $SD = 11.5$). Seventy-nine percent were female.

Procedure. Participants first completed the Experiences in Close Relationships–Revised (ECR-R) inventory (Fraley, Waller, & Brennan, 2000), a 36-item questionnaire designed to measure attachment-related anxiety and avoidance. Participants clicked on a continuous scale to indicate the extent to which they agreed or disagreed with each item. The correlation between anxiety and avoidance for this sample was .42 ($p < .001$), which is consistent with previous attachment research using the ECR-R. Cronbach's alpha for the present sample was .92 for anxiety and .94 for avoidance.

After completing this questionnaire, participants were given instructions on the Choose Your Own Adventure task. Specifically, participants were informed that they were going to read an interactive story in which they were the protagonist. They were further informed that at certain points in the story they would be presented with choices and that those choices would affect the way the narrative unfolded. They were told to select the choices that they would be most likely to make in an actual relationship. Before the story was presented, participants were asked to enter the first name of their actual dating partner or a fictional dating partner. This name was inserted into the text to customize the story for readers.

Embedded in the story were 20 predetermined points at which participants had to make an either-or decision. Participants read two to three paragraphs of the story before reaching each decision point. One of the choices presented was designed to be a relationship-enhancing one, whereas the other choice was designed to be a detrimental one. (These choices were randomly counterbalanced throughout the story such that the positive option was sometimes listed first and the negative option was sometimes listed first.) Pretesting demonstrated that the

choices labeled as beneficial versus detrimental were considered by most individuals to be beneficial or detrimental for a relationship. Moreover, testing indicated that the positive options available later in the story were not any more obviously positive than those presented earlier in the story (see Appendix A for the proportion of participants who selected the positive choice at various points in the story for each of the three studies).

Many of the response options forced the reader to interpret the partner's intentions. For example, in one segment of the story the protagonist's partner had been talking on the phone to his or her former romantic partner and later asked how he or she felt about the situation. The participant was then given the choice to say, "I'm glad to know you can still get along with people you've dated" (the relationship-enhancing choice) or "I'm a little worried something is still going on between you two" (the relationship-detrimental choice). (See Appendix B for more details.)

Regardless of the options selected, each participant read the same story. However, participants were not aware of this fact and were under the impression that their decisions influenced how the relationship evolved. This procedure allowed us to examine the decisions participants made in a standardized fashion. After finishing the story, participants completed the Relationship Assessment Scale (Hendrick, Dicke, & Hendrick, 1998), which was used to assess how satisfying participants found the fictional relationship. Participants clicked on a continuous scale ranging from one to seven to indicate the extent to which they agreed or disagreed with each item. Cronbach's alpha for this scale was .94. The mean satisfaction score was 5.0 (SD = 1.4). Because the partner's behavior was constant across participants, variation in satisfaction should reflect each individual's unique interpretations and attributions. After completing all measures, participants were given debriefing information as well as personalized feedback concerning their attachment styles and their progression through the story. On average, it took participants approximately 20 minutes to complete the task.

Results and Discussion

Relational choices: How do people begin the story and how do they move through it? Because participants made multiple choices over time, we thought it would be of interest to model (a) the positivity of choices made at the beginning of the story and (b) how the positivity of choices changed over the course of the story. To do so, we estimated the parameters of a simple linear regression equation for each participant. These analyses produced two parameters for each person. The first, the intercept, represented the positivity of the choices made

at the beginning of the story (the first decision point), which was coded as zero. The second, the slope, represented the rate of change in the positivity of responses throughout the story. We should note that, because the choices people made were binary (i.e., the option was either a relationship-enhancing or a relationship-detrimental one), these individual-level regression analyses approximate the parameters of interest.[1] The unstandardized slope, for example, approximately represents the change in the probability that a person will endorse a beneficial option as he or she moves forward from one segment of the story to the next.

On average, participants tended to choose the relationship-enhancing option at the beginning of the story; the average intercept value was .64 (SD = .21). To determine whether individual differences in attachment were related to the first decision made, we regressed these intercepts simultaneously on attachment-related anxiety and avoidance using OLS regression methods. This model explained 6% of the variance in the intercepts, $F(2, 556) = 18.88$, $p < .001$. Both highly anxious individuals ($B = -.02$, $\beta = -.09$, $t(556) = -2.04$, $p = .042$) and highly avoidant individuals ($B = -0.03$, $\beta = -.20$, $t(556) = -4.41$, $p < .001$) were less likely to choose the relationship-enhancing option at the beginning of the story.

On average, participants tended to increase in the rate at which they chose positive options throughout the story; the average rate of change was .01 (SD = .02). More than 71% of participants had positive rates of change. To determine whether individual differences in attachment were related to rates of change, we regressed variation in these slopes on the individual-level intercepts as well as attachment-related anxiety and avoidance. This model explained 62% of the variance in slopes, $F(3, 555) = 306.59$, $p < .001$. As might be expected, people who began making relationship-enhancing choices had nowhere to go but down ($B = -.06$, $\beta = -.81$, $t(555) = -.30.20$, $p < .001$). Attachment orientations were associated with changes in the kinds of choices people made throughout the story. Specifically, increases in the frequency of relationship-enhancing choices occurred at a slower rate for highly anxious people ($B = -.002$, $\beta = -.14$, $t(555) = -4.85$, $p < .001$) and highly avoidant people ($B = -.001$, $\beta = -.09$, $t(555) = -3.14$, $p = .002$). Highly anxious and avoidant people still had positive slopes, on average, when we substituted specific values [i.e., ±1 SD] for the attachment variables into the regression equation. Thus, highly insecure people, like highly secure people, made relationship-enhancing choices at a positive rate but at a rate that was smaller than that of people who were more secure.

Satisfaction in the fictional relationship. As we discussed previously, participants rated how satisfied they were with the relationship after they finished reading

the story. These ratings are of interest for two reasons. First, previous research on adult attachment indicates that highly insecure people tend to be less satisfied with their relationships compared to more secure people (Kirkpatrick & Davis, 1994; Simpson, 1990). However, it has not always been clear from this kind of work whether insecure people are less satisfied because they enter relationships with biases that lead them to experience relationships in more negative ways from the outset or whether the dynamics of the relationships themselves (e.g., not receiving the care, support, and understanding needed from one's partner) lead to dissatisfaction. One of the advantages of the Choose Your Own Adventure paradigm as it was implemented in Study 1 is that it allows us to study the way satisfaction is affected independently of the partner's behavior.

To address these issues, we conducted a hierarchical regression analysis in which we modeled variation in relationship satisfaction as a function of several variables. In the first step of the analysis, we regressed satisfaction on the individual-level intercepts and slopes. In the second step, we added attachment-related anxiety and avoidance. In the third step, we added the interactions between the two attachment dimensions and the intercepts and slopes. The first model explained 10% of the variance in satisfaction, $F(2, 555) = 29.97$, $p < .001$. People who began the story making relationship-enhancing choices were more likely to feel satisfied at the end compared to those who did not ($B = 3.00$, $\beta = .46$, $t(555) = 7.29$, $p < .001$). Moreover, people who made increasingly positive choices over the course of the story were more likely to feel satisfied at the end ($B = 20.60$, $\beta = .24$, $t(555) = 3.90$, $p < .001$).[2] In short, even though everyone read the same story, the unique choices that people made influenced how satisfied they were with the relationship.

The addition of the two attachment dimensions led to a significant increase in R^2 ($\Delta R^2 = .06$, $F[2, 553] = 19.67$, $p < .001$). Regardless of how one moved through the story (i.e., holding constant variation in intercepts and slopes), people who were highly avoidant were less satisfied with the relationship at the end ($B = -.38$, $\beta = -.28$, $t(553) = -6.27$, $p < .001$). Anxious individuals, contrary to our expectations, were slightly more satisfied with the relationship ($B = .12$, $\beta = .09$, $t(555) = 1.99$, $p = .048$). Taken together, these results suggest that highly preoccupied people (i.e., those who are high in anxiety and low in avoidance; Griffin & Bartholomew, 1994) experienced the greatest satisfaction from the relationship whereas dismissing people (i.e., those who are low in anxiety and high in avoidance) experienced the least.

The addition of the interactions between the slopes, intercepts, and the attachment dimensions did not help explain any additional variance in satisfaction ($\Delta R^2 = .01$, $F[4, 549] = 1.98$, $p = .096$). Thus, the effects of

attachment were largely independent of how people moved through the story.

In summary, participants' preexisting attachment styles influenced the choices made at the beginning of the story and the choices made throughout the story. Highly insecure people made poorer choices right off the bat. In the context of an iterative narrative, however, they did make increasingly positive choices over time, but they did so at a slower rate than did more secure people. Finally, the choices people made throughout the story appeared to have an impact on how satisfied they were in the fictional relationship despite the fact that, in reality, their choices had no impact on the progression of the narrative. It appears that people's own decisions, devoid of any consequences, may be capable of affecting the perceived quality of their relationships.

STUDY 2

The purpose of Study 2 was to determine if attachment orientations influence how in-tune someone is with his or her partner's behaviors. If one's partner is behaving in a supportive, secure manner, it is possible that he or she may respond by making relationship-enhancing choices, whereas if the partner is behaving in an unresponsive way, he or she may pull back and begin behaving in unresponsive ways as well. By manipulating the partner's behavior throughout the Choose Your Own Adventure narrative, we were able to examine how attachment orientations influence one's responses to either a supportive or unsupportive partner and how these dynamics impact the satisfaction experienced with the relationship.

Method

Participants. Data were collected via the Internet through the same means described in Study 1. There were 1,128 participants. Of participants, 64% were from the United States, 9% were from the United Kingdom, and 7% were from Canada. The remaining participants were from other countries. The median age was 24 years ($M = 27.5$, $SD = 10.3$). Eighty percent of the participants were female.

Procedure. Participants first completed the Experiences in Close Relationships–Revised questionnaire (Fraley et al., 2000). The correlation between anxiety and avoidance for this sample was .41 ($p < .001$). Cronbach's alpha for this sample was .93 for anxiety and .94 for avoidance. They were then given the same story instructions used in the previous study. We modified the original story to derive two new narratives. In one version, the "supportive"

narrative, the fictional partner behaved in a consistently supportive manner. In the other version, the unsupportive narrative, the fictional partner behaved in an insensitive manner. To illustrate the distinction, consider the following example: In one portion of the story, the partner had just hung up the phone after talking to his or her ex-partner. In the supportive version of the story, the partner goes on to assure the participant that he or she is just friends with the ex-partner and that there is no reason to be concerned. In the unsupportive version, the partner continues to talk about the ex after getting off the phone, potentially ignoring whether the participant is bothered by this behavior. (See Appendix B for examples.)

As before, the story evolved independently of the participants' actual choices but participants were operating under the assumption that their choices had consequences for the way in which the narrative progressed. At the end of the story, participants indicated how satisfied they were with the relationship. Cronbach's alpha for the satisfaction scale for this sample was .96. The mean satisfaction score was 4.6 (SD = 1.6). At the end of the study, participants received debriefing information and customized feedback about their attachment style and the way they moved through the story.

Results and Discussion

Relational choices: Does partner behavior influence how people begin the story and how they move through it? As in Study 1, we estimated two parameters for each participant: an intercept and a slope. These parameters characterize the kind of choice the participant made at the start of the story (i.e., the intercept) and the rate of change toward relationship-enhancing choices or destructive choices throughout the story (i.e., the slope). Averaging across conditions, participants tended to choose the relationship-enhancing option at the beginning of the story; the average intercept value was .67 (SD = .20). Also, participants tended to increasingly select the relationship-enhancing choices as they moved through the story; the average rate of change was .01 (SD = .02).[3]

To determine how the supportiveness of the partner influenced movement through the story and how attachment orientation may have affected that movement, we estimated the parameters of several regression models. In the first, we modeled individual differences in intercepts as a function of condition (i.e., partner supportive [coded as 1] or unsupportive [coded as 0]), attachment orientation (i.e., avoidance and anxiety), and the interactions between condition and attachment. Which condition the participant was in (i.e., the supportive narrative or unsupportive narrative) did not have an effect on the choices participants made at the first decision point, $F(1, 1126)$ = .022, *ns*. This was to

be expected as participants would not be able to tell at the very beginning of the story whether the partner was responding in a sensitive or insensitive manner as they had not yet received feedback from the partner. As in Study 1, participants who were highly avoidant tended to make fewer relationship-enhancing choices at the beginning of the story (B = −.04, β = −.19, $t(1124)$ = −5.91, p < .001). Participants who were highly anxious tended to make fewer positive choices as well (B = −.02, β = −.11, $t(1124)$ = −3.42, p = .001). There were no interactions between the attachment dimensions and condition in predicting which choices were made at the start: Condition × Anxiety B = .01, β = .03, $t(1123)$ = .57, p = .569; Condition × Avoidance B = .001, β = .002, $t(1123)$ = .04, p = .967.

We next modeled individual differences in rates of change as a function of condition, attachment styles, and their interaction. This model explained 56% of the variance in slopes, $F(6, 1121)$ = 234.43, p < .001. Condition influenced the rates of change in the kinds of choices people made throughout the story, $F(1, 1126)$ = 4.59, p = .032. Participants who read the supportive narrative increased in their rate of change in making relationship-enhancing choices compared to those individuals who interacted with the unsupportive partner. Additionally, these rates of change were associated with attachment orientation. Highly anxious individuals (B = −.003, β = −.16, $t(1124)$ = −7.46, p < .001) and highly avoidant individuals (B = −.001, β = −.06, $t(1124)$ = −2.69, p = .007) were less likely to make increasingly positive choices throughout the story. There were no interactions between attachment and condition concerning the choices the participants made throughout the story: Condition × Anxiety B = .001, β = .003, $t(1122)$ = .12, p = .909; Condition × Avoidance B = .001, β = −.01, $t(1122)$ = −.38, p = .703.

Satisfaction in the fictional relationship. As in Study 1, we conducted a hierarchical regression analysis in which we modeled variation in relationship satisfaction as a function of several variables. In the first step, we regressed satisfaction on the individual-level intercepts and slopes. This model explained 9% of the variance in satisfaction, $F(2, 1124)$ = 57.39, p < .001. People who started the story by making a positive choice were more likely to feel satisfied at the end compared to those who made the negative choice (B = 3.44, β = .44, $t(1124)$ = 10.69, p < .001). Participants who increased at a faster rate in the number of relationship-enhancing choices they made throughout the story were more likely to feel satisfied at the end compared to those with slower rates (B = 26.90, β = .29, $t(1124)$ = 7.20, p < .001). In the second step, we added attachment-related anxiety and avoidance. This addition did not result in a significant increase in R^2 (ΔR^2 = .04, $F[2, 1122]$ = 2.50, p = .083).

However, these results showed a similar trend as those found in Study 1, in that highly avoidant individuals reported the least satisfaction with the relationship (anxiety $B = .08$, $\beta = .05$, $t(1122) = 1.61$, $p = .107$; avoidance $B = -.10$, $\beta = -.06$, $t(1122) = -2.02$, $p = .043$). In the third step, we added the interaction between the slopes, intercepts, and attachment dimensions. As in Study 1, this addition did not explain any additional variance in satisfaction ($\Delta R^2 = .01$, $F[4, 1118] = .42$, $p = .791$).

Which condition the participant was in (that is, the supportive or unsupportive version) also affected satisfaction with the relationship in that participants who read the supportive version were more likely to feel satisfied at the end of the story ($B = 1.12$, $\beta = .36$, $t(1121) = 13.53$, $p < .001$). Moreover, the supportiveness of the partner interacted with attachment orientation such that there was a trend for the effect of condition on satisfaction to be weaker for highly avoidant individuals, $B = -.17$, $\beta = -.08$, $t(1119) = -1.90$, $p = .057$. In other words, although individuals who read the supportive version of the story tended to feel more satisfied with the relationship at the end of the story, there was a tendency for this effect to be less pronounced among highly avoidant individuals.

STUDY 3

One of the advantages of the methods used up to this point is that the stories the participants read were actually independent of the choices they made (even though the participants were not aware of this fact). As such, we were able to investigate how properties of individuals (e.g., attachment style) and their actions (e.g., the choices they make) influence the way they experience the relationship. In real life, however, just as in interactive fiction, the choices people make have consequences. The purpose of Study 3 was to determine whether the same kinds of patterns as observed in the previous studies would be found in a situation in which making poor choices leads the partner to respond in a more negative, rejecting manner. To do this, we made the fictional partner's behavior contingent on the choices made by the participant.

Method

Participants. Data were collected from 2,993 people via the Internet in the manner described previously. Of the participants, 68% were from the United States, 5% were from the United Kingdom, and 5% were from Canada. The remaining participants were from other countries. The median age was 24 years ($M = 26.5$, $SD = 9.2$). Seventy-two percent of the participants were female.

Procedure. Participants completed the Experiences in Close Relationships–Revised questionnaire (Fraley et al., 2000). The correlation between anxiety and avoidance for this sample was .39 ($p < .001$). Cronbach's alpha for this sample was .90 for anxiety and .93 for avoidance. They were then given the same instructions used in the previous two studies. In this version, however, the partner's behavior was dependent on the choices made by the participant. If the participant made the relationship-enhancing choice, the next story fragment described the partner responding in a supportive, warm manner. If the participant made the detrimental choice, the next story fragment described the partner responding in an insensitive, cold, or defensive manner. For example, in one portion of the story the partner is talking on the phone to his or her ex-partner. After hanging up, the partner asks if it is okay that he or she still talks to the ex. Participants are given two options to respond to the partner: One option demonstrates trust in the partner while the other demonstrates suspicion and a lack of trust. If the participant makes the former choice, the partner responds in a reassuring manner, making sure to express his or her devotion. If the participant makes the latter choice, the partner responds in a critical, quarrelsome manner (see Appendix B for examples).

As in the previous studies, participants were given choices at 20 points throughout the story. To make the stories as similar as possible for each participant, we manipulated only the responses of the partner and not the actual events that took place (e.g., each participant read the section of the story that concerned the ex-partner). For each of the 20 junctures in the story, there was one positive and one negative outcome. Thus, the story's structure did not resemble a complex branching structure but was instead constrained to have two branches at each point (see Figure 1 for an abstract representation of the structure of the scenarios). As a consequence, it was possible for two participants to read the same sections of the story even if they made different choices at earlier points. For example, if two participants responded to the ex-partner scenario in different ways, but then both chose a positive response at the next stage in the story, they would both then receive the exact same section of the story next (with the partner responding in a positive manner). At the end of the story, participants rated their satisfaction with the relationship. Cronbach's alpha for the satisfaction scale for this sample was .94. The mean satisfaction score was 5.0 ($SD = 1.3$). At the end of the study, participants received personalized feedback.

Results and Discussion

Relational choices: Does partner behavior influence how people begin the story and how they move through
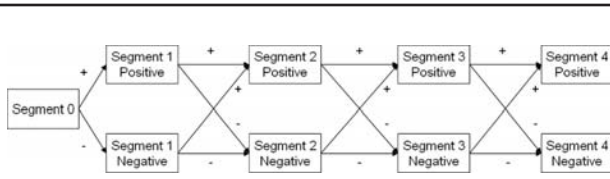
Figure 1   An abstraction of the structure of the story segments used in Study 3.

it when the partner's behavior is contingent on the choices made? As in Studies 1 and 2, we estimated an intercept and slope for each participant. The intercept characterizes the kinds of choices participants made at the beginning of the story, and the slope characterizes the rate of change toward relationship-enhancing choices. On average, participants tended to choose the relationship-enhancing choice at the start of the story; the average intercept value was .66 (SD = .18). Also, participants tended to select the relationship-enhancing choices at an increasing rate as they moved through the story; the average slope was .01 (SD = .01).[4]

To determine whether attachment orientation was related to the decisions made at the start of the story, we regressed the intercepts simultaneously on attachment-related anxiety and avoidance. This model explained 5% of the variance in intercepts, $F(2, 2990) = 77.63$, $p < .001$. Both highly anxious individuals ($B = -.01$, $\beta = -.04$, $t(2990) = -2.10$, $p = .035$) and highly avoidant individuals ($B = -.04$, $\beta = -.20$, $t(2990) = -10.50$, $p < .001$) were less likely to choose the relationship-enhancing option at the start of the story.

To determine whether rates of change were related to individual differences in attachment, we regressed variation in the slopes on the individual-level intercepts as well as attachment-related anxiety and avoidance. This model explained 51% of the variance in slopes, $F(3, 2989) = 1,043.18$, $p < .001$. As in the previous studies, attachment was associated with changes in the kinds of choices participants made throughout the story. Increases in the frequency of relationship-enhancing options occurred at a slower rate for highly anxious individuals ($B = -.002$, $\beta = -.15$, $t(2989) = -10.78$, $p < .001$) and highly avoidant individuals ($B = -.001$, $\beta = -.05$, $t(2989) = -3.85$, $p < .001$).

Satisfaction in the fictional relationship. To address the issue of satisfaction in the context of a truly evolving narrative, we again conducted a hierarchical regression analysis in which we modeled variation in relationship satisfaction as a function of several variables. We first regressed satisfaction on the individual-level intercepts and slopes. This model explained 12% of the variance in satisfaction, $F(2, 2988) = 210.78$,

$p < .001$. As in the previous studies, individuals who began the story by making the relationship-enhancing choice were more likely to feel satisfied at the end compared to those who made the detrimental choice ($B = 3.66$, $\beta = .48$, $t(2988) = 20.32$, $p < .001$). Also, participants who made relationship-enhancing choices in an increasingly faster rate were more likely to feel satisfied compared to those individuals with slower rates ($B = 30.43$, $\beta = .29$, $t(2988) = 11.98$, $p < .001$).

In the second step, we added the attachment dimensions, which led to a significant increase in R^2 ($\Delta R^2 = .04$, $F[2, 2986] = 64.35$, $p < .001$). Regardless of the choices made throughout the story, people who were highly avoidant were less satisfied at the end ($B = -.28$, $\beta = -.21$, $t(2986) = -11.19$, $p < .001$), whereas individuals who were highly anxious were more satisfied at the end ($B = .06$, $\beta = .04$, $t(2986) = 2.20$, $p = .028$). The addition of the interactions between the slopes, intercepts, and the attachment dimensions did not help explain any additional variance in satisfaction ($\Delta R^2 < .01$, $F[4, 2982] = 2.02$, $p = .089$).

In summary, people's attachment orientations influenced the decisions they made at the start of the story; highly insecure people were more likely to make the detrimental choice relative to highly secure people. Although highly insecure individuals did make increasingly positive choices over time, this increase occurred at a slower rate compared to more secure individuals. Again, the choices people made at the start of the story and throughout the story influenced the satisfaction they experienced in the fictitious relationship. These results were similar to those found for Studies 1 and 2 in which participants' choices did not actually affect the partners' behaviors. In this study, the partner's response was contingent on the participant's actions. It is interesting that even when highly insecure individuals experience responses as a direct function of their actions, they are still relatively slow to adopt beneficial relationship choices. It is possible that insecure individuals simply do not realize the detrimental impact that their actions have on their relationships. It is also possible that they simply choose not to engage in behaviors that would be more positive for the relationship either because they are unable to or do not want to overcome their initial negative tendencies.

GENERAL DISCUSSION

To date, research on the influence of attachment orientations on the attributions people make in romantic relationships has focused primarily on people's responses to scenarios that are independent of one another. The purpose of the present studies was to

extend this work by examining how working models shape relationship dynamics under conditions in which the relationship is a continuous, iterative, and constantly evolving one. Through the use of an interactive medium, we examined how attachment orientations influence the choices people made throughout an ongoing fictional relationship and how these choices affected the satisfaction experienced in that relationship.

In each study, highly insecure individuals tended to choose the relationship-enhancing option at the beginning of the story less often than did highly secure individuals. Additionally, highly insecure individuals were less likely to make an increasing number of positive choices throughout the story. These results imply that working models influence not only how people approach new relationships but how they navigate those relationships once they have begun.

Our findings also suggest that the choices people made at the beginning of the story and throughout the story affected the satisfaction they experienced with the relationship. Specifically, people who began the story making relationship-enhancing choices and people who made an increasing number of positive choices throughout the relationship experienced a greater amount of satisfaction. This finding is significant because it suggests that the idiosyncratic decisions that people make in their relationships can have effects on the way they experience those relationships—even when the partner's behavior is not contingent on those decisions.

In Study 2, we created two versions of the story. In one, the partner responded in a sensitive, supportive manner (the supportive narrative). In the other, the partner responded in a distant, insensitive manner (the unsupportive narrative). Which narrative the participant read influenced the choices people made throughout the story in that individuals who interacted with the supportive partner responded with a greater increase in the amount of positive decisions made compared to individuals who interacted with the unsupportive partner. Which story the participants read also impacted the satisfaction experienced with the relationship, in that participants who interacted with the sensitive, supportive partner reported more satisfaction with the relationship. There was a trend for this effect to be slightly weaker for highly avoidant individuals, implying that the satisfaction experienced in their relationships may be less contingent on their partners' behavior than it is for other people.

In Study 3, we created a true Choose Your Own Adventure story in which the choices made by the participant affected the partner's responses. It is interesting that highly insecure individuals responded in ways similar to what we found in Study 1 (in which their choices did not actually have consequences). Despite

the fact that choosing the relationship-enhancing option as opposed to the detrimental option resulted in a positive response from the partner, highly insecure individuals still did not change their behavior to elicit this response more often.

Taken together, the findings from these studies have important implications for understanding attachment dynamics. Previous research has demonstrated that insecure people report more relationship distress and less relationship satisfaction than do secure people (Simpson, 1990). It has been unclear, however, whether this association is because highly insecure individuals enter relationships with partners who behave in ways consistent with their negative expectations or whether insecure individuals interpret their partners' behaviors in negative ways and respond in a manner that brings about more negative, unsatisfying relationship experiences. The studies reported here indicate that both processes play at least some role in influencing the dynamics of relationships. Regardless of the partner's behavior, highly insecure individuals continually made detrimental relationship choices (many of which indicated distrust in the partner or assumed ill-will). In other words, participants' responses cannot be blamed solely on the partners' behaviors because although participants interacted with the same partner in Study 1, individual differences consistent with attachment orientations were apparent in the choices that were made. In Study 2, we found that the supportiveness of one's partner impacted the decisions participants made throughout the story. However, regardless of whether the partner was distant and unsupportive or concerned and supportive, highly insecure individuals still did not react in the same way as did more secure individuals. This finding indicates that even with a warm, concerned partner, insecure individuals will still not make relationship-enhancing choices at the same rate as more secure individuals will. In Study 3, we found that even when the partner's behavior was contingent on the choices people made, insecure individuals still did not respond in the same manner as did more secure individuals.

In addition to these findings, it is key to keep in mind that, in each of the studies, insecure individuals began to make an increasing number of positive responses as they moved throughout the story although they did not increase as quickly as did more secure individuals. These findings are noteworthy because previous research on attachment has some disturbing implications. Namely, previous research suggests that insecure people are often doomed to perpetuate the kinds of interpersonal behaviors that fuel their insecurities. If insecure people expect the worst from their partners and then behave in ways that bring out the worst from them, not only will their relationships suffer but they will believe that their insecurities were justified all

along. Our research suggests that this conclusion may not hold when relationship dynamics are studied in an iterative fashion. Namely, although highly insecure people made detrimental choices at the beginning of the story, they gradually came to make better choices over the course of the narrative. Additionally, interacting with a warm, concerned partner led participants, both secure and insecure, to increase their rate of positive responses. These data suggest that the transactional cycles that might facilitate insecurity can be broken to some extent when the partner behaves in a consistently warm and supportive manner.

Previous research has indicated that the attributions made in romantic relationships have an influence on relationship satisfaction (Bradbury & Fincham, 1990; Fincham & Bradbury, 1987). Consistent with those findings, we found that the choices made in the fictional relationship affected the satisfaction the participant experienced with the fictional partner. In each study, participants who made less positive choices found the relationship less satisfying. This finding is noteworthy because it demonstrates that one's own internal dynamics affect relationship satisfaction independently of the behavior of one's partner. Additionally, although participants who interacted with the supportive partner were more satisfied at the end of the story, there was a trend for this finding to be less pronounced for highly avoidant individuals.

Limitations of These Studies

Although the use of an interactive medium allows for unique insights into attachment dynamics, readers should generalize from these results cautiously. It is possible that the responses participants chose in the fictional narrative would be quite different from the choices they would make in a real-life relationship. However, previous research has shown that people tend to respond in a consistent manner to both real and hypothetical relationship events (Fincham & Beach, 1988).

Another possible limitation concerns the influence of participants' actual relationships on the satisfaction experienced with the fictional relationship. We did not ask participants to rate their satisfaction with their real-life partners. Therefore, it is possible that when rating satisfaction with the partner in the story, participants were actually considering their overall satisfaction with their real-life partners. Results from Collins' (1996) research, however, show that the attributions people made for their partners' behaviors were influenced by attachment orientation independently of satisfaction with one's current relationship. In other words, insecure individuals tended to interpret the partner's behaviors in more negative, detrimental ways independently of the

quality of their real-life relationship.

We acknowledge that studying behavior through the use of a fictional narrative is by no means a substitute for more naturalistic studies of relationship behavior. We are currently conducting longitudinal research that will allow us to address many of the issues discussed here in real couples, including how one's partner's attachment orientation can influence one's own behaviors and one's satisfaction with the relationship. However, a unique benefit of the use of an interactive medium is the ability to determine how a person's internal dynamics influence relationship behavior and satisfaction. Because we were able to hold the partner's behavior constant for each participant in Studies 1 and 2, the resulting choices and satisfaction experienced with the relationship can be attributed to the person's own attachment representations. Study 3, on the other hand, showed what happens when a more realistic relationship is experienced (i.e., when the partner's response is congruent with the individual's actions).

In conclusion, being in a close relationship requires that one make choices—choices about how to behave and how to feel. This research suggests that the choices one makes are guided, in part, by the attachment representations that one brings to the relationship. Those choices, in turn, shape the way the relationship is ultimately experienced.

APPENDIX A
Percentage of Participants Who Selected the Positive Choice at Various Points in the Stories

	Percentage		
Decision Point	Study 1	Study 2	Study 3
1	96	96	96
2	94	93	93
3	66	71	66
4	52	52	51
5	40	40	43
6	75	73	71
7	67	67	61
8	51	47	49
9	63	63	65
10	90	86	87
11	64	62	68
12	85	83	89
13	90	91	90
14	68	68	70
15	92	92	93
16	88	83	82
17	67	67	68
18	54	56	61
19	98	98	98
20	95	95	95

APPENDIX B
Examples of Questions Used

Study 1

Ryan* spends the rest of the evening at your house taking care of you. At one point, he gets a call and goes into the other room to answer it. He comes back and tells you it was his ex calling to say hello. You know that they are still friends and talk occasionally. Ryan asks if you're okay with the fact that he still talks to his ex. Do you say,

**(a) "Yeah, I'm glad to know you can still get along with people you've dated."
(b) "Not really, I'm a little worried something may still be going on between you two."

Ryan continues talking about his ex and you're starting to feel a little jealous. The week before, someone you used to be interested in called to ask you out, but you didn't tell Ryan because it wasn't a big deal to you and you'd more or less forgotten about it. While he is talking about his ex, you suddenly remember the incident and figure he will probably be jealous if you tell him. Do you

(a) Not mention the incident to him, not wanting him to feel jealous.
(b) Casually bring up the incident, hoping he will feel a little jealous.

The following week, Ryan comes over to your place. You are just hanging out and having a good time when you begin to get into a discussion about the relationship. Ryan says he feels that things are getting serious and that you should have a discussion about where things are going. Do you say,

(a) "That's a good idea," figuring it can only help the relationship if you're both on the same wavelength.
(b) "Maybe we should take a break," figuring he is having second thoughts about the relationship and you should end things before he does.

*Participants' own partners' names or a fictional partner's name was inserted into the stories. Here we use "Ryan" as an example.
**For each entry in this table, "a" indicates the relationship-enhancing choice. In the actual study, the relationship-enhancing and relationship-detrimental choices were randomly assigned to "a" or "b" throughout the story.

Study 2: Supportive Partner

Stacy can tell you're a little uncomfortable around her family and makes sure to keep her arm around you the entire time. Dinner is ready so everyone sits down to eat. Halfway through dinner, the doorbell rings. In walks a guy your age. Quickly walking over to Stacy, the guy gives her a hug. Stacy introduces the guy as her parents' next-door neighbor whom she grew up with. When the guy leaves, the guy gives Stacy a new phone number and tells her to call sometime. Once you're back in the car, do you

(a) Not say anything, assuming they are just old friends.
(b) Tell her you would prefer she not call.

Stacy begins talking about the guy and tells you how they grew up together and are old friends. You don't really say anything, so she goes on to reassure you that she has no intention of calling. Later on the way home, you ask Stacy if she wants to go to dinner tomorrow night. "I already have plans to go out with my friends," she tells you. You've gone out many times in the past with her and her friends, so you're surprised when she lets the subject drop without inviting you. Do you say,

(a) Is it a girls' night out?
(b) Is something wrong?

Study 2: Unsupportive Partner

Dinner is ready so everyone sits down to eat. Halfway through dinner, the doorbell rings. In walks a guy your age. Quickly walking over to Stacy, the guy gives her a hug. Stacy introduces the guy as her parents' next-door neighbor whom she grew up with. At one point Stacy is talking to the guy so intently that she ignores what you are saying. When the guy leaves, the guy gives Stacy a new phone number and tells her to call sometime. Once you're back in the car, do you

(a) Not say anything, assuming they are just old friends.
(b) Tell her you would prefer she not call.

Stacy begins talking about the guy and tells you how they grew up together and are old friends. You don't really say anything. Later on the way home, you ask Stacy if she wants to go to dinner tomorrow night. "I already have plans to go out with my friends," she tells you. You've gone out many times in the past with her and her friends, so you're surprised when she lets the subject drop without inviting you. Do you say,

(a) Is it a girls' night out?
(b) Is something wrong?

Study 3

At one point, Chris gets a call and goes into the other room to answer it. Twenty minutes later he comes back and tells you it was his ex calling to say hello. You know that they are still friends and talk occasionally. Chris asks you if you're okay with the fact that he still talks to his ex. Do you say,

(a) "Yeah, I'm glad to know you can still get along with people you've dated."
(b) "Not really, I'm a little worried something may still be going on between you two."

(continued)

APPENDIX B (continued)

If "a" is chosen:

Chris reassures you that nothing is going on with his ex and that you're the only one he cares about. However, he keeps talking about the ex, and you're starting to feel a little jealous. The week before, someone you used to be interested in called to ask you out, but you didn't tell Chris because it wasn't a big deal to you and you'd more or less forgotten about it. While he is talking about his ex, you suddenly remember the incident and figure he will probably be jealous if you tell him.

Do you

If "b" is chosen:

"I don't know why you would even think that," Chris says. "You're always worried." Chris keeps talking about the ex, and you're starting to feel a little jealous. The week before, someone you used to be interested in called to ask you out, but you didn't tell Chris because it wasn't a big deal to you and you'd more or less forgotten about it. While he is talking about his ex, you suddenly remember the incident and figure he will probably be jealous if you tell him.

Do you

(a) Not mention the incident to him, not wanting him to feel jealous.

(b) Casually bring up the incident, hoping he will feel a little jealous.

(a) Not mention the incident to him, not wanting him to feel jealous.

(b) Casually bring up the incident, hoping he will feel a little jealous.

NOTES

1. We also calculated the correlations between attachment and the number of relationship-enhancing options chosen. Results indicated that highly anxious individuals ($r = -.31$, $p < .001$) and highly avoidant individuals ($r = -.32$, $p < .001$) chose the relationship-enhancing option less frequently than did more secure individuals.

2. The raw coefficient is much larger here than in the other analysis simply because of scaling: The predictor variable (i.e., slopes or rates of change) varies across an objectively narrow range of values (i.e., $M = .01$, $SD = .02$). Thus, someone who is two standard deviations above the mean would be expected to have a satisfaction score .412 units higher than someone at the mean.

3. We again calculated the correlations between attachment and the number of relationship-enhancing options chosen. Results indicated that highly anxious individuals ($r = -.31$, $p < .001$) and highly avoidant individuals ($r = -.29$, $p < .001$) chose the relationship-enhancing option less frequently than did more secure individuals.

4. As before, highly anxious individuals ($r = -.25$, $p < .001$) and highly avoidant individuals ($r = -.26$, $p < .001$) chose the relationship-enhancing option less frequently than did more secure individuals.

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