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The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size

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Abstract
Three studies evaluated the reliability and validity of the Investment Model Scale, an instrument designed to measure four constructs, including commitment level and three bases of dependence—satisfaction level, quality of alternatives, and investment size. In all three studies, reliability analyses revealed good internal consistency among items designed to measure each construct. Also, principal components analyses performed on scale items revealed evidence of four factors, with items designed to measure each construct loading on independent factors. Studies 2 and 3 examined associations of model variables with instruments measuring diverse qualities of relationships and assorted personal dispositions. As anticipated, Investment Model variables were moderately associated with other measures reflecting superior couple functioning (e.g., dyadic adjustment, trust level, inclusion of other in the self), and were essentially unrelated to measures assessing personal dispositions (e.g., need for cognition, self-esteem). In addition, Study 3 demonstrated that earlier measures of Investment Model variables predicted later levels of dyadic adjustment and later relationship status (persisted vs. ended). It is hoped that the existence of a reliable and valid Investment Model Scale will promote further research regarding commitment and interdependence in ongoing close relationships.

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This research is dedicated to John Martz (1964–1995). John was an excellent scientist and an exceptional human being. His enthusiasm for science and for life's other pleasures infected and inspired his friends, colleagues, and students. We miss him very much.

Over the past two decades social scientists have exerted considerable effort toward understanding why some relationships persist over time whereas others wither and die. Many researchers have assumed that the best route to understanding persistence is to explore the determinants and consequences of positive affect—attraction, satisfaction, or love. For example, the goal of many studies is to explain the causes of attraction or love, and measures of satisfaction frequently are employed as indices of couple health (for reviews of the literature, see Berscheid, 1994; Berscheid & Reis, 1998). The implicit or explicit assumption is that if partners love each other and feel happy with their relationship, they will be more likely to persist in their relationship.

In some respects this point of view makes good sense: All things considered, it is easier to persist when a relationship feels good than when it feels bad. But at the same time, it may be somewhat simplistic to assume that happiness tells the whole story in explaining persistence. Stripped to its essence, such a model of human persistence suggests that "as long as it feels good, I'll stick with it." Importantly, this conventional focus on the study of affective reactions fails to answer three key questions: First, why do some relationships persist despite dissatisfaction; for example, why do unhappy partners sometimes remain together due to inertia, or "for the sake of the children"? Second, why do some satisfying relationships end; for example, why do individuals sometimes abandon relatively happy relationships to pursue desirable alternatives? And third, how can we account for persistence in the face of ordinary fluctuations in relationships; given that satisfaction ebbs and flows even in the most gratifying involvements, and given that tempting alternatives threaten even the most smitten partners, why do some relationships survive such fluctuations whereas others do not?

Recognizing that whether a relationship is satisfying and whether it persists to some degree may be separate issues, several theories of commitment processes have been advanced (Brickman, Dunkel-Schetter, & Abbey, 1987; Johnson, 1991; Kelley, 1983; Levinger, 1979; Rusbult, 1980a). These theories share the assumption that commitment is a key issue in understanding why some relationships persist and others do not. Among these theories, Rusbult's (1980a) Investment Model has been shown to be especially powerful in predicting commitment and persistence across many types of romantic relationship (e.g., marital relationships, lesbian and gay relationships) as well as in friendships and in organizational settings (for reviews of the literature, see Rusbult, 1987; Rusbult & Buunk, 1993; Rusbult, Drigotas, & Verette, 1994).

Unfortunately, empirical research regarding the Investment Model has proceeded in a somewhat haphazard manner, in that no published instrument exists for measuring commitment and its antecedents. This article presents the results of three studies demonstrating the reliability and validity of the Investment Model Scale, an instrument designed to measure four key predictors of persistence, including commitment level and three bases of dependence—satisfaction level, quality of alternatives, and investment size. To justify the need for such a scale, we begin by describing the Investment Model and reviewing existing research regarding commitment processes.

Determinants of Commitment: Satisfaction, Alternatives, and Investments

The Investment Model emerged out of Interdependence Theory and employs interdependence constructs to analyze the tendency to persist in a relationship (Kelley, 1979; Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). Interdependence Theory is a unique orientation in that its explanatory power rests on an analysis of the interdependence structure characterizing a given relationship, not on the personal dispositions of the involved persons. "Dependence" is a central feature of interdepen-

dence structure, particularly insofar as we seek to understand persistence in a relationship. *Level of dependence* refers to the extent to which an individual "needs" a given relationship, or relies uniquely on the relationship for attaining desired outcomes.

How do individuals become dependent on their relationships? Interdependence Theory identifies two main processes through which dependence grows. First, and consistent with the field's traditional emphasis on positive affect, individuals become increasingly dependent to the extent that they experience high satisfaction in a relationship. *Satisfaction level* refers to the positive versus negative affect experienced in a relationship. Satisfaction is influenced by the extent to which a partner fulfills the individual's most important needs. For example, Bill is likely to feel satisfied to the degree that Mary gratifies his intellectual, companionate, and sexual needs.

However, satisfaction is not the sole basis for dependence. According to Interdependence Theory, dependence is also influenced by the quality of available alternatives. *Quality of alternatives* refers to the perceived desirability of the best available alternative to a relationship. Quality of alternatives is based on the extent to which the individual's most important needs could effectively be fulfilled "outside" of the current relationship—in a specific alternative involvement, by the broader field of eligibles, by friends and family members, or on one's own. For example, to the degree that Bill's needs for intimacy and companionship could not be gratified elsewhere, quality of alternatives is poorer and his dependence on Mary is greater.

Thus, Interdependence Theory suggests that dependence on a relationship is greater to the extent that an individual wants to persist with a given partner (i.e., satisfaction level is high), and to the extent that an individual has no choice but to persist with that partner (i.e., alternatives are poor). The Investment Model extends Interdependence Theory propositions in two respects (Rusbult, 1980a, 1983). First, the Investment Model suggests that satisfaction level and alternative quality do not fully explain dependence. If dependence was based solely on the satisfactions derived from the current relationship in comparison to those anticipated elsewhere, few relationships would endure—a relationship would falter on the occasion of poor outcomes or the appearance of an attractive alternative. In reality, some relationships survive even when an attractive alternative is available, and even when a relationship is not very gratifying. How can we explain persistence in the face of tempting alternatives and fluctuating satisfaction?

The Investment Model asserts that dependence is also influenced by a third factor—investment size. *Investment size* refers to the magnitude and importance of the resources that are attached to a relationship—resources that would decline in value or be lost if the relationship were to end (cf. Becker, 1960; Rubin & Brockner, 1975; Staw, 1976; Teger, 1980; Tropper, 1972). As a relationship develops, partners invest many resources directly into their relationship in the hope that doing so will improve it. For example, Bill may disclose his private thoughts and feelings to Mary, and may put considerable time and effort into their relationship. Moreover, some investments are indirect, and come into existence when originally extraneous resources such as mutual friends, personal identity, children, or shared material possessions become attached to a relationship. Invested resources presumably enhance commitment because the act of investment increases the costs of ending a relationship, serving as a powerful psychological inducement to persist.

The Investment Model further extends Interdependence Theory by suggesting that feelings of commitment emerge as a consequence of increasing dependence. *Commitment level* is defined as intent to persist in a relationship, including long-term orientation toward the involvement as well as feelings of psychological attachment (e.g., a

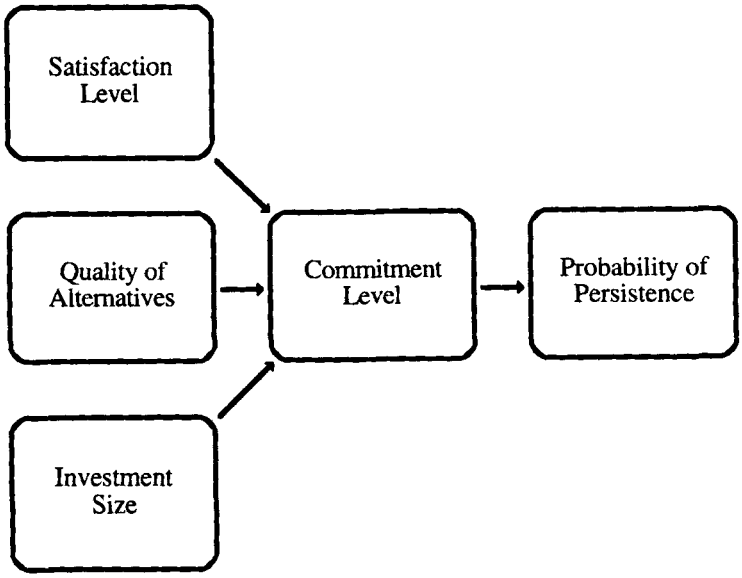

Figure 1. The investment model of commitment processes.

sense of "we-ness"; Agnew, Van Lange, Rusbult, & Langston, 1998). How does commitment differ from dependence? Dependence is a fundamental quality of relationships—a relationship state describing the additive effects of wanting to persist (feeling satisfied), needing to persist (having high investments), and having no choice but to persist (possessing poor alternatives; see Figure 1). As individuals become increasingly dependent they tend to develop strong commitment. Commitment can be construed as a sense of allegiance that is established with regard to the source of one's dependence. For example, because Bill is dependent on his relationship with Mary, Bill develops an inclination to persist with Mary, he comes to think of himself as part of BillandMary, and he considers the broader implications of his actions—implications extending beyond his immediate self-interest, including effects on the relationship next week and next month and next year. As such, the psychological experience of commitment reflects more than the bases of dependence out of which it arises. Commitment is the psychological construct that directly influences everyday behavior in relationships, including decisions to persist—that is, commitment mediates the effects on persistence of the three bases of dependence (see Figure 1).

Consequences of Commitment: Persistence and Relationship Maintenance Mechanisms

The empirical literature provides consistent support for Investment Model claims, demonstrating that (a) commitment is positively associated with satisfaction level and investment size, and is negatively associated with quality of alternatives; (b) each of these variables contributes unique variance to predicting commitment; (c) compared to less committed individuals, highly committed individuals are substantially more likely to persist in their relationships; and (d) commitment is the most direct and powerful predictor of persistence, partially or wholly mediating the effects of satisfaction, alternatives, and investments on decisions to remain in versus end a relationship. Such findings have been observed in several cultures (e.g., the United States, the Netherlands, and Taiwan), in research employing diverse methodologies and a variety of participant populations (for example, marital

and nonmarital relationships, heterosexual and gay or lesbian relationships, abusive relationships; e.g., Bui, Peplau, & Hill, 1996; Buunk, 1987; Cox, Wexler, Rusbult, & Gaines, 1997; Drigotas & Rusbult, 1992; Duffy & Rusbult, 1986; Felmlee, Sprecher, & Bassin, 1990; Gelles, 1980; Hill, Rubin, & Peplau, 1976; Kurdek, 1991, 1993; Lin & Rusbult, 1995; Lund, 1985; Rusbult, 1980a, 1983; Rusbult, Johnson, & Morrow, 1986; Rusbult & Martz, 1995; Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; Sabatelli & Cecil-Pigo, 1985; Secord, 1983; Simpson, 1987; South & Lloyd, 1995; Straus & Gelles, 1986; Strube, 1988; Strube & Barbour, 1983; Van Lange, Agnew, Harinck, & Steemers, 1997; Van Lange, Rusbult, Drigotas, Arriaga, Witcher, & Cox, 1997; White, 1980). Such findings have also been observed in nonromantic contexts—for example, in research on commitment and persistence in friendships, in formal and informal groups, and in organizational settings (e.g., Farrell & Rusbult, 1981; Kanter, 1968; Leik & Leik, 1976; Lin & Rusbult, 1995; Meyer & Allen, 1984; Mowday, Porter, & Steers, 1982; Rusbult, 1980b; Rusbult & Farrell, 1983; Rusbult, Lowery, Hubbard, Maravankin, & Neises, 1988; Staw, 1981).

Of course, persistence is a rather minimal requirement for relationship maintenance. Partners inevitably confront situations that are potentially harmful to the longevity of their involvement—situations in which they must solve mutual problems of interdependence involving destructive interaction sequences, noncorrespondent preferences, or the existence of tempting alternatives. Solving such interdependence dilemmas typically entails some cost in the form of effort expenditure or departure from one's immediate self-interest. With repeated exposure to particular classes of interdependence dilemma, stable response orientations tend to evolve. Some individuals routinely act in accord with their direct self-interest and behave in ways that harm their relationships, whereas other individuals exhibit willingness to enact costly or effortful pro-relationship behaviors.

The process by which individuals come to depart from their direct self-interest for the good of a relationship is termed *transformation of motivation* (Holmes, 1981; Kelley & Thibaut, 1978). Commitment appears to play a key role in inducing benevolent, pro-relationship transformation. Indeed, strong commitment has been shown to promote a variety of relationship maintenance behaviors, including (a) tendencies to accommodate rather than retaliate when a partner behaves badly (Rusbult, Bissonnette, Arriaga, & Cox, 1998; Rusbult et al., 1991; Wieselquist, Rusbult, Foster, & Agnew, 1998), (b) willingness to sacrifice otherwise desirable activities when partners' preferences are noncorrespondent (Van Lange et al., 1997), (c) inclinations to derogate tempting alternative partners (Johnson & Rusbult, 1989; Simpson, Gangestad, & Lerma, 1990), and (d) tendencies toward relationship-enhancing illusion, or inclinations to perceive one's relationship as both better than and not as bad as other relationships (Murray & Holmes, 1993; Rusbult, Van Lange, Yovetich, Wildschut, & Verette, 1998; Van Lange & Rusbult, 1995).

Overview of the Present Research

Thus, existing research not only supports the claim that commitment is strengthened under conditions of high satisfaction, poor alternatives, and sizable investments, but also demonstrates that commitment directly mediates tendencies to persist in relationships and to enact the sorts of maintenance behaviors outlined above. Accordingly, it would seem that commitment is a relatively powerful motive in ongoing relationships. Unfortunately, no published scales exist to measure the four key constructs of the Investment Model. The present research attempts to remedy this state of affairs by proffering an instrument for measuring commitment and the three bases of dependence identified by the Investment Model.

The three studies described below present the Investment Model Scale, which includes measures of commitment level, satisfaction level, quality of alternatives, and

investment size. We began with a version of the Investment Model Scale that was similar to the scales employed in previous research on the Investment Model (e.g., Rusbult, 1983; Rusbult et al., 1991; Van Lange et al., 1997); seeking to develop an increasingly refined instrument, as we proceeded through the three studies a few scale items were deleted, added, or modified. In addition to filling out the Investment Model Scale, participants in Studies 2 and 3 also completed instruments measuring diverse qualities of relationships and diverse personal dispositions. In Study 3 we also obtained information regarding the later status of relationships (i.e., whether the relationship had persisted or ended). The goals of the studies were (a) to evaluate the internal reliability of our measures; (b) to obtain evidence regarding the convergent and discriminant validity of these measures; and (c) to assess the predictive validity of the measures.

To examine scale reliability and validity, item analyses, factor analyses, and correlational analyses were performed on the data obtained in Studies 1, 2, and 3. To examine the convergent and discriminant validity of measures, in Studies 2 and 3 we examined the associations of Investment Model variables with extant instruments measuring several features of relationships as well as several personal dispositions. Given that commitment and the bases of dependence emerge over the course of involvement with a partner, these variables presumably tell us a good deal about the nature of a given relationship, but presumably have much less to do with the personal dispositions of the involved persons (e.g., their personalities). Also, given that the Investment Model variables support persistence and other pro-relationship behaviors, these variables should exhibit moderate associations with other variables reflecting superior couple functioning, such as dyadic adjustment, trust, and love. However, we anticipated that the Investment Model variables would be only weakly related to purely temporal features of relationships such as duration or amount of time spent together. For example, although dependence and commitment grow over time, the mere passage of time is not sufficient to cause increasing commitment (i.e., some relationships develop slowly whereas others develop quickly). Moreover, assuming that the Investment Model variables reflect differences between relationships rather than differences between individuals, these variables should exhibit negligible associations with personal dispositions such as self-esteem or need for cognition.

Method

Overview of the studies

In Study 1 we administered scale items to a sample of individuals who were involved in ongoing romantic relationships, employing items that have been utilized in previous research on the Investment Model. In Study 2 we modified a few scale items based on the results of Study 1, and administered 12 additional instruments in order to explore the convergent and discriminant validity of Investment Model Scales. In Study 3 we made a few final refinements of scale items, administered four of the validity-relevant instruments that were utilized in Study 2, and conducted follow-up telephone interviews to determine whether each relationship persisted over time and exhibited good adjustment.

Participants

Study 1. Participants in Study 1 were 415 undergraduates (243 women, 172 men) who took part in the study in partial fulfillment of the requirements for introductory psychology courses at the University of North Carolina at Chapel Hill. Sign-up sheets listed a requirement for participation: "To participate, you must be involved in a dating relationship of at least one week in duration"; volunteers who were not involved in dating relationships were allowed to participate in an alternative project. Participants were 19.36 years old on average. Most were freshmen or sophomores (39% fresh-

men, 37% sophomores, 16% juniors, 8% seniors), and the majority were Caucasian (10% African American, 2% Asian American, 84% Caucasian, five percent other). Participants had been involved with their partners for an average of 19.69 months (*Mdn* = 13.50).

Study 2. A total of 326 individuals took part in Study 2 in partial fulfillment of the requirements for introductory psychology courses. Sign-up sheets listed the same requirement for participation as was employed in Study 1. Thirteen individuals were deleted from the sample because they had missing data for one or more variables, leaving 313 participants (164 women, 149 men). Participants were 19.55 years old on average. Most were freshmen or sophomores (33% freshmen, 39% sophomores, 18% juniors, 10% seniors), and the majority were Caucasian (8% African American, 3% Asian American, 84% Caucasian, 5% other). Participants had been involved with their partners for an average of 19.09 months (*Mdn* = 13.00).

Study 3. Participants in Study 3 were 186 individuals (96 women, 90 men) who took part in the study in partial fulfillment of the requirements for introductory psychology courses. Sign-up sheets listed the same requirement as was employed in Studies 1 and 2. Two men were deleted from the sample because they described friendships rather than dating relationships. We were able to contact 137 of the Time 1 participants (83 women, 54 men) for Time 2 follow-up interviews. At Time 1, participants were 19.23 years old on average. Most were freshmen or sophomores (34% freshmen, 44% sophomores, 17% juniors, 5% seniors), and the majority were Caucasian (10% African American, 1% Asian American, 89% Caucasian, 1% other). At Time 1, participants had been involved with their partners for an average of 15.96 months (*Mdn* = 13.00). Most described their relationships as steady dating relationships (10% dating casually, 14% dating regularly, 71% dating steadily, 5% engaged or married), and described their relationships as monogamous (82% said neither partner dated others, 5% said one partner dated others, 13% said both partners dated others).

Procedure

Studies 1 and 2. One to seven participants attended each research session. The experimenter described the project as a study of attitudes and behavior in romantic relationships, and explained that each participant would be asked to complete a computer-assisted questionnaire describing his or her current romantic relationship. The questionnaire was presented via personal computers, linked through a server via network software. The experimenter explained how to use the computer, and participants proceeded through the questionnaire at their own pace. At the end of the session, participants were thoroughly debriefed and thanked for their assistance.

Study 3. Five to 20 participants attended each research session. Participants (a) completed paper-and-pencil questionnaires measuring each Investment Model construct; (b) filled out forms listing their names, addresses, telephone numbers, and partners' names or initials; and (c) indicated whether they were willing to take part in a follow-up telephone interview during the following semester; 159 participants agreed to be telephoned (85% of the 186 Time 1 participants). At the end of the Time 1 session, participants were partially debriefed and thanked for their assistance. Two to 5 months after the Time 1 sessions we contacted participants for follow-up interviews (*M* = 15.47 weeks), attempting to telephone each individual on as many as 10 occasions. A total of 137 participants completed Time 2 interviews (86% of the 159 Time 1 participants who agreed to be contacted)—four individuals had moved from the community, and we were unable to contact an additional 18 others. The relationships of 36 participants had ended by Time 2 (21 women, 15 men), and 101 of the 137 Time 2 participants were still involved with

their partners (62 women, 39 men). At the end of the Time 2 interviews we mailed all participants complete debriefing information.

Questionnaires

Studies 1, 2, and 3: Facet measures of Investment Model constructs. Following a procedure employed in previous studies (e.g., Rusbult, 1980a, 1980b, 1983), we included two types of items to measure satisfaction, alternatives, and investments: (a) facet items, which measure concrete exemplars of each construct, and (b) global items, or general measures of each construct (for the final version of the Investment Model Scale, see Appendix). This approach is based on the assumption that some participants might find it difficult to respond to broad global items such as "I have invested a great deal in my relationship." Facet items prepare participants to answer global items by activating thoughts about each construct and concretely illustrating each construct. Thus, facet items are utilized to enhance the comprehensibility of global items, thereby increasing their reliability and validity—the facet items are included solely to obtain good global measures of each Investment Model construct. The global measures of each construct are the measures that are employed in formal tests of Investment Model hypotheses.

The facet items were developed based on (a) previous research regarding the Investment Model (e.g., Rusbult, 1983; Rusbult et al., 1991) and (b) pretesting reported by Drigotas and Rusbult (1992). The Satisfaction Level facet items assessed the degree to which the relationship gratified the individual's specific needs for intimacy, companionship, sexuality, security, and emotional involvement. The Quality of Alternatives facet items assessed the degree to which each of the above needs could be fulfilled in alternative relationships (e.g., by another dating partner, friends, family). The Investment Size facet items tapped invested time, shared identity, shared memories, self-disclosure, and shared intellectual life. Again, note that the facet items are included to enhance the comprehensibility of the global items, and that the global items are employed in formal tests of Investment Model hypotheses. Given that the facet items are included in the instrument solely for the purpose of improving the quality of our global measures, most of the analyses reported below do not include the facet items.

Studies 1, 2, and 3: Global measures of Investment Model constructs. As noted earlier, the questionnaire items employed in Study 1 were similar to those employed in previous research on the Investment Model; these items were developed based on the theoretical meaning of each Investment Model construct (e.g., Rusbult, 1980a, 1983; Rusbult et al., 1991). In Studies 2 and 3 we deleted, modified, or added a few items in an effort to develop increasingly refined and reliable measures of each construct. In all three studies, participants reported degree of agreement with each item using 9-point Likert scales (in Studies 1 and 2, 1 = agree not at all; 9 = agree completely; in Study 3, 0 = do not agree at all; 4 = agree somewhat; 8 = agree completely). In Study 1, five items each were included for Satisfaction Level, Quality of Alternatives, and Investment Size; in light of the centrality of the commitment construct in the Investment Model, Commitment Level was measured by 12 items. Study 2 included six items for Satisfaction, six items for Alternatives, nine items for Investments, and 11 items for Commitment. Study 3 included five items each for Satisfaction, Alternatives, and Investments, and nine items for Commitment. Table 1 lists the items that were selected for retention based on preliminary item analyses performed for each study; the Appendix presents the final version of the Investment Model Scale. (Studies 1 and 2 included scales to measure additional constructs that are not relevant to the present research; accordingly, these scales will not be discussed.)

Study 2: Validity-relevant measures. In Study 2, participants completed 12 additional in-

struments. Six of these instruments measured qualities of ongoing relationships. These instruments were selected because they are relatively prominent in the close relationships literature, and because they sample diverse theoretical orientations (e.g., Self-Expansion Theory, Equity Theory). The 32-item Dyadic Adjustment Scale is comprised of Likert, dichotomous, and checklist items (Spanier, 1976; e.g., "Do you kiss your partner?"; 1 = never; 5 = every day), and includes subscales to measure Dyadic Consensus, Affective Expression, Dyadic Satisfaction, and Dyadic Cohesion (alphas = .86, .69, .85, .71). Given that this scale includes four items that are relevant to Satisfaction or Commitment (e.g., "How often do you discuss or have you considered ending your relationship?"), we examined both (a) Total Dyadic Adjustment, based on the original 32-item scale (alpha = .91), and (b) "Satisfaction- and Commitment-Purged" Adjustment, based on a 28-item scale excluding items that are related to either Satisfaction or Commitment (alpha = .89). The Relationship Closeness Inventory measures three components of closeness; this 75-item instrument includes Likert, checklist, and fill-in-the-blank items (Berscheid, Snyder, & Omoto, 1989; e.g., "_____ does not influence my present financial security" [reverse-scored]; 1 = strongly disagree; 7 = strongly agree; alpha = .44), and includes subscales to measure Frequency of Contact, Strength of Influence, and Diversity of Contact (alphas for the former = .59, .91; K-R 20 for the latter = .88). The scale Inclusion of Other in the Self presents seven Venn diagrams representing varying degrees of overlap between circles labeled to represent the self and the partner; the respondent selects the diagram that "best describes" the relationship (Aron, Aron, & Smollan, 1992; choices range from completely separate, nonoverlapping circles [1] to nearly complete overlap [7]). The Trust Scale assesses relationship-specific trust with 17 six-point Likert items (Rempel, Holmes, & Zanna, 1985; e.g., "Though times may change and the future is uncertain, I know my partner will always be ready and willing to offer me strength and support"; −3 = agree not at all; +3 = agree completely; alpha = .89), and includes subscales to measure Predictability, Dependability, and Faith (alphas = .74, .78, .82). The Liking and Loving Scale includes 18 nine-point Likert items (Rubin, 1970; e.g., "I feel that I can confide in _____ about virtually anything"; 0 = don't agree at all; 8 = agree completely; alphas = .90, .88). The Equity in Relationship Scale includes four 8-point Likert items (Walster, Walster, & Traupmann, 1978; e.g., "All things considered, how would you describe *your* outcomes from your relationship?"; −4 = extremely negative; +4 = extremely positive; alpha = .83).

Six of the Study 2 instruments assessed personal dispositions. These instruments were selected because they sample diverse individual-level attributes (e.g., cognitive style, perceived control, self-esteem). The Balanced Inventory of Desirable Responding is a 40-item instrument measuring both Self-Deception and Impression Management (Paulhus, 1991; e.g., "I never cover up my mistakes" [reverse-scored], 1 = not true; 7 = very true; alphas = .68, .67). The scale Multivariate Need for Cognition includes 25 true/false items designed to assess Cognitive Persistence, Cognitive Complexity, and Cognitive Confidence (Tanaka, Panter, & Winborne, 1988; e.g., "I only think as hard as I have to" [reverse-scored]; 0 = false; 1 = true; K-R 20 for the total scale and for subscales = .83, .77, .58, .61). The instrument titled Multivariate Evaluation of Self includes five 9-point Likert items (Hoyle, 1991; e.g., "I sometimes think I am a worthless individual" [reverse-scored]; 1 = not at all like me; 9 = very much like me; alpha = .93). The Affiliation and Independence Inventory includes 20 four-point Likert items (Eidelson, 1980; e.g., "I do not go out of my way to meet people"; 1 = very uncharacteristic; 4 = very characteristic; alphas = .84, .61). The Collective Self-Esteem Scale taps Membership Collective Self-Esteem, Private Col-

Table 1. *Means, standard deviations, item-total correlations, and alphas for items designed to measure each investment model construct: Studies 1, 2, and 3*

	Study 1 (n = 415)			Study 2 (n = 313)			Study 3 (n = 186)		
	M	*SD*	Alpha/Item Total *r*	*M*	*SD*	Alpha/Item Total *r*	*M*	*SD*	Alpha/Item Total *r*
Commitment Level—Global items			*.91*			*.91*			*.95*
I am committed to maintaining my relationship with my partner.	7.59	1.88	.87	7.63	1.95	.84	6.83	1.75	.92
I want our relationship to last for a very long time.	7.53	2.07	.85	7.46	2.20	.83	6.75	1.89	.90
I feel very attached to our relationship—very strongly linked to my partner.	7.42	1.94	.78	7.42	2.14	.84	6.54	1.95	.82
It is likely that I will date someone other than my partner within the next year. (−)	6.23	2.81	.72	6.23	2.84	.72	5.09	2.86	.75
I would not feel very upset if our relationship were to end in the near future.[a] (−)				7.69	2.17	.66	6.85	1.88	.87
I want our relationship to last forever.							5.68	2.65	.89
I am oriented toward the long-term future of my relationship . . .							5.76	2.59	.87
Our relationship is likely to end in the near future. (−)	7.14	2.27	.73						
Satisfaction Level—Global items			*.92*			*.95*			*.94*
I feel satisfied with our relationship.	7.19	1.92	.80	7.04	2.10	.85	6.68	1.41	.88
My relationship is much better than others' relationships.	7.30	1.93	.85	7.23	2.11	.87	6.51	1.72	.83
My relationship is close to ideal.	6.46	2.30	.84	6.52	2.40	.86	6.03	1.85	.86
Our relationship makes me very happy.	7.63	1.75	.87	7.38	1.99	.91	6.74	1.57	.85
Our relationship does a good job of fulfilling my needs for intimacy . . .				7.62	1.85	.84	6.97	1.36	.82
I love my partner.	7.82	2.09	.66						
Quality of Alternatives—Global items			*.82*			*.85*			*.88*
My alternatives are attractive to me (dating another, spending time . . .).	4.71	2.58	.80	4.77	2.43	.75	4.17	2.50	.64
My alternatives to our relationship are close to ideal . . .	4.02	2.51	.70	4.01	2.39	.65	3.95	2.42	.82
If I weren't dating my partner, I would do fine—I would find another appealing . . .	5.66	2.44	.62	5.73	2.18	.59	4.52	2.41	.64

Table 1. *Continued*

	Study 1 (n = 415)			Study 2 (n = 313)			Study 3 (n = 186)		
	M	*SD*	Alpha/Item Total *r*	*M*	*SD*	Alpha/Item Total *r*	*M*	*SD*	Alpha/Item Total *r*
The people other than my partner . . . are very appealing.	4.62	2.56	.64	5.19	2.43	.55	3.94	2.59	.70
My needs for intimacy, companionship, etc., could easily be fulfilled . . .				3.77	2.39	.72	3.14	2.40	.75
If I weren't involved in a dating relationship, I would enjoy spending time . . .	6.79	2.06	.31						
Investment Size—Global items			*.84*			*.84*			*.82*
I have put a great deal into our relationship that I would lose . . .	6.69	2.46	.79	6.30	2.32	.75	6.08	2.07	.66
Compared to other people I know, I have invested a great deal . . .				6.51	2.18	.74	6.03	2.14	.70
I feel very involved in our relationship—like I have put a great deal into it.				7.25	2.06	.71	6.42	1.94	.66
Many aspects of my life have become linked to my partner . . .				5.00	2.30	.65	3.89	2.44	.64
My relationships with friends and family members would be complicated . . .				4.09	2.36	.44	3.02	2.60	.47
I have invested a great deal in our relationship that I would lose . . .	6.48	2.54	.80						
I have put things into our relationship that would be lost if our relationship . . .	6.93	2.38	.59						
There are special activities that are associated with our relationship . . .	5.51	2.85	.62						
There are things that are now tied to our relationship that I would lose . . .	3.48	2.77	.48						

Note: Items listed above are those that were retained based on preliminary examination of the data; items from Study 1 that were later deleted from the instrument are presented in italics. (−) Designates items that are reverse-scored. In the column labeled "Alpha / Item-Total *r*," alpha coefficients are displayed in italics; item-total correlation coefficients are not displayed in italics.

[a]In Study 3 this item was worded in the affirmative (i.e., "not" was deleted).

lective Self-Esteem, Public Collective Self-Esteem, and Importance to Identity using 16 seven-point Likert items (Luhtanen & Crocker, 1992; e.g., "In general, I'm glad to be a member of the social groups I belong to"; −3 = strongly disagree; 3 = strongly agree; alphas for the total scale and for subscales = .86, .75, .70, .75, .60). The Internality, Powerful Others, and Chance Scale includes 24 six-point Likert items (Levenson, 1981; e.g., "To a great extent my life is controlled by accidental happenings"; −3 = strongly disagree; 3 = strongly agree; alphas = .62, .74, .78).

Study 3: Validity-relevant measures. The Study 3 questionnaire also included instruments to measure Dyadic Adjustment (alphas for the two total scores and for subscales = .92, .90, .85, .70, .87, .74), Need for Cognition (K-R 20 for the total scale and for subscales = .84, .74, .67, .59), and both Self-Deception and Impression Management (alphas = .62, .81). We included a 25-item version of the Self-Esteem instrument, measuring not only Global Self-Esteem (as in Study 2), but also Social, Physical, Task, and Public Self-Esteem (alphas = .87, .85, .87, .80, .88).

Study 3: Time 2 follow-up interviews

In Study 3, one of 14 trained undergraduate research assistants contacted each participant to obtain follow-up information regarding his or her relationship. The interviewer reminded the individual of the study in which he or she had previously participated, indicating that at the time of the study the participant was dating a person named _____ (the interviewer read the name or initials of the partner from the Time 1 questionnaire). The interviewer asked whether the participant was still dating this person (yes or no). If the participant answered no, the interviewer said, "I'm sorry [with elaboration, if appropriate]. Let me ask just one follow-up question. Who would you say was responsible for ending the relationship? Who most wanted it to end? Would you say (a) you were mainly responsible, (b) your partner was mainly responsible, or (c) you were equally responsible for ending the relationship?" If the participant reported that he or she was still dating the partner, the interviewer asked five follow-up questions that paralleled items from the Dyadic Adjustment Scale (e.g., "How often do you think things are going well between you and your partner? Do you think things are going well . . ."; 1 = all the time; 2 = sometimes; 3 = rarely [reverse-scored]; alpha = .69). At the end of the interview, the interviewer answered any questions and thanked the participant for his or her assistance.

Results

Reliability analyses

To evaluate the reliability of our scales and to determine whether it would be desirable to delete, modify, or add any items, we performed reliability analyses on the items included to measure each construct in Studies 1, 2, and 3. In a few instances we included a greater number of items than we intended to retain in the scale (e.g., in Study 2 we included nine items to measure Investment Size); in these cases we performed preliminary analyses to delete poor items. The results of analyses for retained items are summarized in Table 1. The alpha for each set of items is displayed in italics (see columns labeled "Alpha/Item-Total *r*," statistics in italics); item-total correlations are also displayed (see "Alpha/Item-Total *r*," nonitalicized statistics). Any items that were included in Study 1 but later were deleted from the instrument are presented in italics. For each construct, the items listed for Study 3 are those we recommend employing in future research utilizing this instrument (i.e., all nonitalicized items; see also the Appendix).

These analyses revealed good reliability for the global items designed to measure each construct. Alphas ranged from .91 to .95 for Commitment Level, .92 to .95 for Satisfaction Level, .82 to .88 for Quality of Alternatives, and .82 to .84 for Investment

Size.[1] We also calculated alphas for the facet items that were included to measure Satisfaction, Alternatives, and Investments (these analyses are not presented in Table 1). Because the facet items tap concrete exemplars of each construct, it would not be surprising if these items exhibited relatively lower reliabilities than the global items (e.g., a participant might feel satisfied with companionship features of a relationship, yet feel dissatisfied with the level of security it provides). Nevertheless, these analyses revealed acceptable reliability for the facet items included for each construct. Alphas ranged from .79 to .93 for the Satisfaction facet items, .88 to .93 for the Alternatives facet items, and .73 to .84 for the Investments facet items.

Factor analyses

We performed factor analyses to determine whether the items designed to measure each construct (a) exhibited high factor loadings on a single factor, and (b) did not exhibit high factor loadings for factors tapping other constructs. The four Investment Model variables were expected to be correlated, so the analyses employed oblique, promax rotations. In all three studies, factor analyses revealed four factors with eigenvalues exceeding 1.00, collectively accounting for 98% to 100% of the variance in scale items. A summary of the results of these analyses is displayed in Table 2, which presents the factors in a fixed order across the three studies, with the Commitment factor in the first column, the Satisfaction factor in the second column, and so on.

Examination of the factor loadings for items measuring Satisfaction, Alternatives, and Investments revealed that for each variable (a) all items loaded on a single factor with coefficients exceeding .40 (see coefficients displayed in italics); and (b) no items exhibited cross-factor loadings exceeding an absolute value of .40. The scale items used in Study 1 were refined a bit for use in Studies 2 and 3 by deleting, adding, or modifying items so as to develop an increasingly suitable instrument (e.g., we developed Investment items that better represented the variety of possible investments in relationships).

In Study 1, results for the Commitment items were not as orderly. Three of the five Commitment items loaded on a single, independent factor with coefficients exceeding .40, but all five Commitment items exhibited sizable cross-loadings on the Satisfaction factor. However, as a consequence of a few deletions and additions to the overall scale, the analyses for Studies 2 and 3 revealed factor structures for Commitment that were as orderly as were those for Satisfaction, Alternatives, and Investments. To ensure that the items measuring Commitment and Satisfaction were empirically distinguishable, we performed separate factor analyses of the items tapping these two constructs. Once again, the analyses employed oblique, promax rotations. Across all three studies, the analyses revealed two factors with eigenvalues exceeding 1.00, collectively accounting for 100% of the variance in scale items. In Study 1, all five Commitment items loaded on a single factor, and four of the five Satisfaction items loaded on a single factor; one Satisfaction item exhibited a cross-loading on the Commitment factor. In Studies 2 and 3, for both Commitment and Satisfaction (a) all items loaded on a single factor, and (b) no items exhibited cross-factor loadings.

Thus, our factor-analytic findings provide good evidence regarding the independence of items designed to measure each Investment Model construct. In addition, the inter-factor correlations reveal

1. The reliability coefficients for Alternatives and Investments were somewhat lower than were those for Commitment and Satisfaction. We have observed this tendency in previous research regarding the Investment Model (cf. Rusbult et al., 1998; Van Lange et al., 1997) and have speculated that the lower reliabilities observed for these constructs may be due to the multifaceted nature of Alternatives and Investments. For example, the Alternatives items tap such diverse qualities as the probability of finding another appealing dating partner, the desirability of the general field of eligibles, and the acceptability of spending time with friends or on one's own.

Table 2. *Factor analysis of Global Investment Model scale items: Studies 1, 2, and 3*

	Study 1 (n = 415)				Study 2 (n = 313)				Study 3 (n = 186)			
	F4	F1	F3	F2	F4	F1	F2	F3	F1	F2	F3	F4
Standardized Coefficients—Rotated Factor Pattern												
Commitment Level—Global items												
I am committed to maintaining my relationship with my partner.	*.49*	*.65*	−.05	−.06	*.91*	.15	.02	−.11	*.94*	.11	.03	−.07
I want our relationship to last for a very long time.	*.46*	*.67*	−.01	−.03	*.76*	.15	−.11	−.05	*.96*	.06	.05	−.02
I feel very attached to our relationship—very strongly linked . . .	*.41*	*.66*	−.01	−.04	*.57*	.21	−.05	.22	*.44*	.29	−.07	.23
It is likely that I will date someone other than my partner . . . (−)	.10	*.50*	−.32	.01	*.43*	.28	−.16	.02	*.43*	.15	−.32	.06
I would not feel very upset if our relationship were to end . . .(−)					*.44*	.10	−.14	.13	*.79*	.21	.06	.03
I want our relationship to last forever.									*.66*	.01	−.18	.17
I am oriented toward the long-term future of my relationship . . .									*.64*	−.01	−.22	.13
Our relationship is likely to end in the near future. (−)	.09	*.62*	−.17	−.01								
Satisfaction Level—Global items												
I feel satisfied with our relationship.	.03	*.89*	.03	−.06	.15	*.87*	.05	−.12	−.02	*.92*	−.09	−.06
My relationship is much better than others' relationships.	−.19	*.94*	.07	.08	−.04	*.85*	.04	.16	−.05	*.86*	.01	.06
My relationship is close to ideal.	−.18	*.92*	−.02	.08	−.05	*.86*	−.01	.10	−.04	*.83*	.06	.20
Our relationship makes me very happy.	.08	*.91*	.05	.00	.16	*.82*	−.02	.01	.30	*.79*	.02	−.19
Our relationship does a good job of fulfilling my needs . . .					.01	*.86*	−.01	.00	.13	*.75*	−.03	−.01
I love my partner.	.21	*.58*	.03	.20								

Quality of Alternatives—Global items												
My alternatives are attractive to me (dating another, spending . . .).	.05	−.08	*.89*	−.03	−.04	.04	*.84*	−.01	−.02	−.03	*.91*	.08
My alternatives to our relationship are close to ideal . . .	.03	−.14	*.73*	.00	−.01	.02	*.73*	−.02	.02	.04	*.75*	.04
If I weren't dating my partner, I would do fine—I would find . . .	−.07	.04	*.63*	−.02	.05	.02	*.67*	−.05	.12	.03	*.69*	−.17
The people other than my partner . . . are very appealing.	−.03	−.15	*.65*	.03	−.23	.07	*.55*	.10	−.23	−.02	*.62*	.03
My needs for intimacy, companionship, etc., could easily be . . .					.03	−.18	*.71*	−.06	−.06	−.10	*.69*	−.06
If I weren't involved in a dating relationship, I would enjoy . . .	.03	.11	*.45*	.07								
Investment Size—Global items												
I have put a great deal into our relationship that I would lose . . .	.05	.00	−.03	*.94*	.02	.04	−.01	*.75*	.11	.03	−.15	*.56*
Compared to other people I know, I have invested a great deal . . .					.16	−.13	.07	*.88*	.12	.04	.04	*.78*
I feel very involved in our relationship—like I have put a great . . .					.22	.12	.00	*.67*	.19	.16	.07	*.65*
Many aspects of my life have become linked to my partner . . .					−.12	.09	−.08	*.63*	−.03	.03	−.15	*.54*
My relationships with friends and family members would be . . .					−.14	.06	−.02	*.49*	−.07	−.08	.02	*.57*
I have invested a great deal in our relationship that I would lose . . .	.05	−.07	−.04	*.97*								
I have put things into our relationship that would be lost . . .	.00	.10	.13	*.62*								
There are special activities that are associated with our relationship . . .	−.08	.02	.01	*.61*								
There are things that are now tied to our relationship that I would . . .	−.12	.05	−.02	*.46*								
Eigenvalues												
Eigenvalues =	1.78	34.21	4.13	13.77	2.24	38.95	5.24	3.61	65.27	6.74	4.35	3.26
Inter-Factor Correlations												
Factor 1—Commitment Level		.33	−.44	.38		.65	−.56	.57		.69	−.58	.63
Factor 2—Satisfaction Level			−.49	.34			−.42	.53			−.42	.53
Factor 3—Quality of Alternatives				−.21				−.43				−.48
Factor 4—Investment Size												

Note: Items listed above are those that were retained based on preliminary examination of the data; items from Study 1 that were later deleted from the instrument are presented in italics. (−) Designates items that are reverse-scored. F1 = Factor 1 from the analysis, F2 = Factor 2, F3 = Factor 3, and F4 = Factor 4. All coefficients exceeding an absolute value of .40 are displayed in italics.

that the four factors exhibit the predicted pattern of association with one another (see bottom of Table 2). The Commitment factor was positively correlated with the Satisfaction factor and the Investments factor, and was negatively correlated with the Alternatives factor. Also, the three bases of dependence relate to one another as would be expected—the Satisfaction factor was negatively correlated with the Alternatives factor and was positively correlated with the Investments factor, and the Alternatives factor was negatively correlated with the Investments factor.

Associations among measures

The results of the above analyses revealed evidence of generally good reliability and validity for the set of items designed to measure each Investment Model construct. Accordingly, a single measure of each construct was formed by averaging the items associated with each variable. Separately for Studies 1, 2, and 3, correlational analyses were performed to ensure that these variables exhibited the anticipated pattern of associations. Results of these analyses are displayed in Table 3.

Three features of these results are noteworthy. First, the analyses revealed evidence of acceptable convergent and discriminant validity: Correlations of the facet measures with the global measures revealed that each facet measure was more powerfully correlated with its corresponding global measure than with global measures of other constructs (see values in italics)—this was true for the facet and global measures of Satisfaction (rs for Studies 1, 2, and 3 = .87, .90, .83), Alternatives (rs = .73, .76, .62), and Investments (rs = .67, .85, .78). Second, and consistent with Investment Model hypotheses, Commitment Level was significantly positively correlated with Satisfaction, negatively correlated with Alternatives, and positively correlated with Investments. And third, the analyses revealed only moderate collinearity among the three Investment Model bases of dependence.

We performed three-factor simultaneous regression analyses to examine the unique contribution of each basis of dependence in predicting commitment. For Study 3, we performed these analyses for both the full Time 1 sample and for the subset of Time 1 relationships that persisted through Time 2. All four analyses revealed that the three factors collectively predicted Commitment Level (R^2s ranged from .69 to .77; all ps $< .01$). Examination of the coefficients for each of the three predictor variables revealed that 11 of 12 regression coefficients were significant. Satisfaction Level was positively predictive of Commitment (4 of 4 effects were significant; betas ranged from .47 to .69), and Quality of Alternatives was negatively predictive of Commitment (4 of 4 effects were significant; betas ranged from −.29 to −.32). The coefficient for Investment Size was nonsignificant in Study 1, but in the remaining instances, Investment Size was positively predictive of Commitment (3 of 4 effects were significant; the significant betas ranged from .19 to .27). These analyses provide good support for the Investment Model hypothesis that Satisfaction, Alternatives, and Investments account for independent variance in commitment.

Correlations with other features of relationships and with personal dispositions

To explore broader issues of validity, we performed correlational analyses to examine the associations of Investment Model variables with measures of six additional features of relationships, with the duration of the relationship, and with measures of six personal dispositions (along with subscales for each instrument). Results of these analyses are displayed in Table 4.

Correlations with other features of ongoing relationships. First, we reviewed correlations of Investment Model variables with other features of ongoing relationships. Assuming that the Investment Model variables support persistence and other pro-relationship behaviors, we anticipated that these variables would exhibit moderate as-

Table 3. *Correlations among all Global and Facet Investment Model Scales: Studies 1, 2, and 3*

	Study 1 (n = 415)				Study 2 (n = 313)				Study 3 (n = 186)			
	COM	SAT	ALT	INV	COM	SAT	ALT	INV	COM	SAT	ALT	INV
Commitment Level—Global (COM)		.84**	−.62**	.33**		.75**	−.60**	.60**		.75**	−.66**	.68**
Satisfaction Level—Global (SAT)			−.46**	.35**			−.42**	.55**			−.45**	.54**
Quality of Alternatives—Global (ALT)				−.17**				−.41**				−.49**
Investment Size—Global (INV)												
Satisfaction Level—Facet Items	.63**	.87**	−.40**	.33**	.67**	.90**	−.38**	.50**	.68**	.83**	−.42**	.58**
Quality of Alternatives—Facet Items	−.61**	−.53**	.73**	−.26**	−.62**	−.54**	.76**	−.45**	−.57**	−.43**	.62**	−.42**
Investment Size—Facet Items	.56**	.61**	−.32**	.67**	.68**	.62**	−.46**	.85**	.73**	.65**	−.48**	.78**

*$p<.05$. **$p<.01$.

Table 4. *Correlations of Global Investment Model Scales with measures of other features of ongoing relationships and with measures of personal dispositions: Studies 2 and 3*

	Study 2 (n = 313)				Study 3 (n = 186)			
	COM	SAT	ALT	INV	COM	SAT	ALT	INV
Correlations with Other Features of Ongoing Relationships								
Dyadic Adjustment								
Total Adjustment Score	.56**	.68**	−.31**	.24**	.69**	.71**	−.46**	.32**
Satisfaction- and Commitment-Purged Score	.50**	.60**	−.27**	.21**	.63**	.66**	−.41**	.28**
Dyadic Consensus	.37**	.36**	−.23**	.18**	.45**	.49**	−.25**	.15*
Affective Expression	.38**	.50**	−.23**	.16**	.40**	.44**	−.31**	.10
Dyadic Satisfaction	.63**	.79**	−.41**	.33**	.76**	.78**	−.51**	.45**
Dyadic Cohesion	.38**	.51**	−.22**	.27**	.48**	.50**	−.26**	.31**
Time 2 Dyadic Adjustment					.40**	.52**	−.34**	.22*
Relationship Closeness								
Total Closeness Score	.30**	.29**	−.25**	.36**				
Frequency of Contact	.08	.10	−.12*	.14*				
Diversity of Contact	.19**	.18**	−.16**	.20**				
Strength of Influence	.51**	.46**	−.33**	.54**				
Inclusion of Other in the Self	.67**	.69**	−.46**	.55**				
Trust Level								
Total Trust Score	.43**	.61**	−.19**	.28**				
Predictability	.35**	.47**	−.20**	.07				
Dependability	.39**	.58**	−.19**	.18**				
Faith	.57**	.71**	−.35**	.34**				
Liking and Loving								
Liking for Partner	.51**	.64**	−.26**	.29**				
Love for Partner	.75**	.71**	−.46**	.65**				
Equity in Relationship	−.07	.15*	−.02	−.04				
Duration of Relationship	.15**	.09	−.05	.26**	.23**	.04	−.10	.36**

Correlations with Personal Dispositions

Socially Desirable Responding								
Self-Deception	.02	.13*	.17*	.05	.15*	.25**	.04	.06
Impression Management	.17*	.15*	−.17*	.14*	.24**	.20**	−.09	.12
Need for Cognition								
Cognitive Persistence	.00	−.01	.00	.03	.02	.04	.00	−.07
Cognitive Complexity	−.10	−.13*	.04	−.09	−.06	.03	.08	−.11
Cognitive Confidence	.06	.08	.04	−.01	.08	.14*	.07	−.05
Self-Esteem								
Global Self-Esteem	.11	.15*	.06	−.03	.06	.15*	.10	−.05
Social Self-Esteem					−.07	.09	.27**	−.12
Physical Self-Esteem					.00	.07	.08	.00
Task Self-Esteem					.10	.21**	.04	−.03
Public Self-Esteem					−.10	.01	.21**	−.15*
Affiliation and Independence Needs								
Need for Affiliation	.00	.08	.11	−.02				
Need for Independence	−.06	−.16*	.03	.02				
Collective Self-Esteem								
Total Collective Self-Esteem	.12	.19**	.02	.09				
Membership Collective Self-Esteem	.09	.17*	.06	.08				
Private Collective Self-Esteem	.07	.07	.00	.06				
Public Collective Self-Esteem	.06	.16*	.03	.04				
Importance to Identity	.13*	.12*	.01	.05				
Internality, Powerful Others, and Chance Control								
Internality	.12*	.17**	.00	.01				
Powerful Others Control	−.08	−.06	.08	.02				
Chance Control	−.14*	−.17**	.03	−.11*				

*$p<.05$. **$p<.01$.

sociations with other variables reflecting superior couple functioning—that is, with variables listed under "Correlations with Other Features of Ongoing Relationships" such as Dyadic Adjustment and Inclusion of Other in the Self (Table 4). At the same time, we anticipated that the Investment Model variables would be only weakly related to purely temporal features of relationships such as duration or amount of time spent together.

In Study 2, we calculated correlations of the four Investment Model variables with six relationship-level instruments and the subscales associated with those instruments—as well as with Duration of Relationship—for a total of 76 separate analyses. In Study 3, we calculated correlations of the four Investment Model variables with the questionnaire measure of Dyadic Adjustment and the subscales of that instrument, with the measure of Dyadic Adjustment obtained in Time 2 telephone interviews, and with Duration of Relationship, for a total of 32 separate analyses. As anticipated, the Investment Model variables exhibited moderate to strong associations with most indices of superior couple functioning. Of the 108 correlational analyses examining the associations of Investment Model variables with other features of ongoing relationships, 97 effects were statistically significant.

Stronger commitment and greater dependence on a relationship—that is, higher Satisfaction, poorer Alternatives, and greater Investments—consistently were associated with superior functioning in relationships. The Investment Model variables consistently were associated with general Dyadic Adjustment, with the Adjustment subscales, and with the follow-up measure of Adjustment obtained in Study 3 Time 2 interviews: Stronger Commitment, greater Satisfaction, poorer Alternatives, and greater Investments were linked with higher levels of Dyadic Adjustment (51 of 52 effects were significant). A similar pattern was evident for the Inclusion of Other in the Self measure (4 of 4 effects were significant), for Trust Level and the Trust subscales (15 of 16 effects were significant), and for measures of Liking and Love for the Partner (8 of 8 effects). However, the measure of Equity in Relationship was significantly correlated with only one Investment Model variable, Satisfaction Level; that is, Investment Model variables are largely independent of the degree to which partners perceive that they receive outcomes from their relationship that are commensurate with their inputs.

Moreover, although Total Relationship Closeness scores were significantly associated with the Investment Model variables (4 of 4 effects), these findings were accounted for largely by links with the Strength of Influence subscale (4 of 4 effects). The Investment Model variables were largely independent of the relatively concrete aspects of closeness tapped by this instrument—the Investment Model variables were weakly correlated with the Diversity of Contact subscale, and were essentially unrelated to the Frequency of Contact subscale. Finally, although Duration of Relationship was weakly positively correlated with Commitment Level and Investment Size (4 of 4 effects), Duration was not significantly associated with either Satisfaction Level or Quality of Alternatives.

Correlations with personal dispositions. We now consider correlations of the Investment Model variables with measures of diverse personal dispositions. Assuming that the Investment Model variables reflect differences between relationships rather than differences between individuals, we anticipated that these variables would exhibit negligible associations with personal dispositions—that is, with the variables listed in Table 4 under "Correlations with Personal Dispositions." In Study 2, we calculated correlations of the four Investment Model variables with six dispositional measures and the subscales associated with those instruments, for a total of 64 separate analy-

ses. In Study 3, we calculated correlations of the Investment Model variables with three dispositional measures and the subscales associated with those instruments, for a total of 40 separate analyses. Consistent with expectations, the Investment Model variables exhibited relatively weak associations with personal dispositions. Of the 104 analyses performed on the data obtained in Studies 2 and 3, a total of 29 effects were statistically significant. Importantly, only 2 of 104 correlations exceeded an absolute value of .25.

The Investment Model variables were essentially unrelated to Need for Cognition (only 2 of 24 effects were significant) and Affiliation and Independence Needs (only 1 of 8 effects), and were weakly associated with Self-Esteem (6 of 24 effects were significant), Collective Self-Esteem (5 of 20 effects), and Internality, Powerful Others, and Chance Control (5 of 12 effects). The Investment Model variables exhibited several significant correlations with Self-Deception and Impression Management (10 of 16 effects), but one effect was opposite to that which would be expected, and only one of these effects exceeded an absolute value of .25. Thus, commitment and the three bases of dependence—as measured by the Investment Model Scale—are generally independent of a wide range of personal dispositions.

Predicting breakup status

Predicting Time 2 persisted versus ended status. In Study 3, we obtained an additional measure that is crucial to evaluating the validity of our instrument: In Time 2 follow-up telephone interviews we determined whether each participant's relationship persisted or ended during the time that elapsed since Time 1 participation. To determine whether earlier self-reports of Commitment, Satisfaction, Alternatives, and Investments predict the later status of a relationship, we performed two-way analyses of variance (persisted vs. ended, women vs. men) on the Investment Model variables and measures of Dyadic Adjustment obtained in Study 3. Results of these analyses are summarized in Table 5 (see columns labeled "Ended" and "Persisted," along with accompanying *F*s).

Consistent with expectations, in comparison to relationships that later ended, individuals in relationships that persisted reported significantly stronger Time 1 Commitment, greater Satisfaction, poorer Alternatives, and greater Investment Size. Also, in comparison to relationships that ended, relationships that persisted exhibited significantly greater Time 1 Dyadic Adjustment. But although the *relationships* that persisted versus ended differed, the *individuals* involved in those relationships did not: Consistent with expectations, out of 10 analyses examining personal dispositions, only one effect was significant (accordingly, results for personal dispositions are not displayed in Table 5)—compared to individuals in relationships that ended, individuals in relationships that persisted exhibited significantly lower Time 1 Cognitive Complexity.

Time 1 Commitment Level was particularly robust in predicting the later status of a relationship. We performed three simultaneous regression analyses, regressing breakup status onto (a) Commitment Level alone, (b) a three-factor model including Satisfaction, Alternatives, and Investments, and (c) a four-factor model including Commitment, Satisfaction, Alternatives, and Investments. Model comparison tests (Cramer, 1972) revealed that the four-factor model was not significantly superior to the one-factor model including only Commitment Level (R^2s = .27 vs. .23; $F[3, 132]$ = 2.41, *ns*). Indeed, Commitment alone predicted breakup status as powerfully as did the three-factor model including the three bases of dependence (R^2s = .23 vs. .21). In the four-factor regression model, the coefficient for Commitment was significant (beta = .46) but the coefficients for Satisfaction and Investments were not (betas = .11 and

Table 5. *Means and inferential statistics for the Investment Model Scales and the Dyadic Adjustment Scale as a function of persisted versus ended status: Study 3*

	Ended	Persisted		Leavers	Abandoned	Stayers	
	$n = 36$	$n = 101$	F	$n = 30$	$n = 6$	$n = 101$	F
Associations with Investment Model Scales							
Commitment Level	4.65	6.79	41.76**	4.36	6.97	6.79	24.87**
Satisfaction Level	5.56	6.96	29.61**	5.61	5.86	6.96	12.07**
Quality of Alternatives	4.56	3.84	5.56*	4.67	3.40	3.84	2.48†
Investment Size	4.02	5.43	19.90**	4.00	4.78	5.43	9.71**
Associations with Dyadic Adjustment							
Total Adjustment Score	137.33	149.87	16.34**	136.90	140.90	149.87	7.51**
Satisfaction- and Commitment-Purged Score	118.99	128.88	14.41**	118.78	120.40	128.88	7.17**
Dyadic Consensus	58.91	63.09	8.16**	58.86	58.90	63.09	4.19*
Affective Expression	12.57	13.75	6.61**	12.45	13.40	13.75	3.88*
Dyadic Satisfaction	45.24	50.75	21.49**	45.21	47.40	50.75	9.40**
Dyadic Cohesion	20.38	22.07	7.93**	20.10	21.20	22.07	3.81*

Note: For analyses contrasting persisted versus ended relationships, $df = 1, 133$; for analyses contrasting stayers, abandoned, and voluntary leavers, $df = 2, 131$.
†$p<.10$. *$p<.05$. **$p<.01$.

.09); the coefficient for Alternatives was significant but positive (beta = .19; this effect was opposite in direction to that which would be predicted, presumably due to a suppressor effect). Thus, and consistent with Investment Model predictions, Commitment is a powerful predictor of persisted versus ended status, plausibly mediating the effects on breakup of the three bases of dependence (Baron & Kenny, 1986).

We also performed two additional two-factor simultaneous regression analyses, regressing breakup status onto (a) Commitment and Total Dyadic Adjustment, as well as onto (b) Commitment and the Satisfaction- and Commitment-Purged measure of Adjustment. In these analyses, the coefficients for Commitment were significant (betas = .50 and .49), but the coefficients for the respective measures of Adjustment were not (betas = .00 and .02). In addition, we performed tests of the significance of difference between dependent effects to directly compare the strength of the Commitment-breakup association to the strength of association between breakup and each of the measures of Dyadic Adjustment (Cohen & Cohen, 1983). These tests revealed that the association of Commitment with breakup was significantly stronger than any of the associations of Dyadic Adjustment with breakup (for the strongest challenger, Dyadic Satisfaction, $t = 2.14$, $p<.01$). Thus, Commitment Level appears to be a more powerful predictor of breakup status than dyadic adjustment.

Predicting responsibility for breakup. In addition to ascertaining persisted versus ended status, for relationships that ended we assessed responsibility for the breakup—whether the breakup was voluntary ("leaver"; the participant was mainly responsible or it was mutual) or nonvoluntary ("abandoned"; the partner was mainly responsible). Investment Model variables should predict breakup status more effectively for "voluntary" leavers than for "nonvoluntary" leavers, or for individuals who were abandoned by their partners (Drigotas & Rusbult, 1992; Rusbult, 1983). Only six individuals described themselves as "abandoned," so analyses based on this distinction are somewhat tenuous in the present research. Nevertheless, two-way analyses of variance (stayer vs. abandoned vs. leaver, women vs. men) revealed findings that paralleled those reported above. Results of these analyses are summarized in Table 5 (see columns labeled "Leavers," "Abandoned," and "Stayers," along with accompanying *F*s).

Voluntary leavers, the abandoned, and voluntary stayers differed with respect to Time 1 Commitment, Satisfaction, Alternatives, and Investments (the effect for Alternatives was marginal). Once again, Commitment was particularly robust in differentiating between voluntary leavers and voluntary stayers. Compared to voluntary leavers and voluntary stayers, the abandoned exhibited a pattern that might be termed "entrapment"—they experienced low satisfaction, but had invested at a moderate level and possessed very poor alternatives, and accordingly exhibited commitment that was as strong or stronger than that of voluntary stayers. These findings replicate previous results regarding the relationship between breakup responsibility and Investment Model variables (Rusbult, 1983). As was observed for persisted versus ended status, leavers, the abandoned, and stayers differed significantly with respect to Time 1 Dyadic Adjustment (all six effects were significant; see Table 5).[2] But importantly, although the *relationships* of leavers, the abandoned, and stayers differed, the *individuals* involved in those relationships did not differ: Out of 10 analyses examining personal dispositions,

2. We do not report follow-up regression analyses, mediation analyses, and effect size comparisons for the stayer versus abandoned versus leaver distinction because (a) the sample size was small for the abandoned category, and (b) the results largely parallel those reported above for persisted versus ended status (e.g., in comparing the effect size for Commitment to that of the strongest Dyadic Adjustment predictor, the predictive power of Commitment was significantly stronger; $t = 2.86$, $p<.01$).

only one effect was significant (accordingly, results for the personal dispositions are not displayed in Table 5)—leavers, the abandoned, and stayers differed in Cognitive Complexity.[3]

Sex differences in model variables

We also examined mean differences between women and men in their responses to Investment Model Scale items. In Studies 1 and 2, we performed one-way analyses of variance (ANOVAs, women vs. men); in Study 3, we examined sex effects in the context of two-way ANOVAs (persisted vs. ended, women vs. men). These analyses revealed that, in comparison to men, women exhibited higher Satisfaction in Study 3 (Study 3 Ms = 3.46 vs. 3.64; F [1, 133] = 4.48, $p<.05$); lower Quality of Alternatives in Studies 1 and 2 (Study 1 Ms = 5.41 vs. 4.98; F [1, 412] = 5.32, $p<.05$; Study 2 Ms = 5.01 vs. 4.40; F [1, 302] = 8.42, $p<.01$); greater Investments in Study 3 (Study 3 Ms = 2.95 vs. 3.29; F [1, 133] = 8.66, $p=.01$); and stronger Commitment in Studies 1 and 2 (Study 1 Ms = 6.95 vs. 7.35; F [1, 412] = 4.51, $p<.05$; Study 2 Ms = 7.03 vs. 7.52; F [1, 310] = 4.86, $p<.05$). In Studies 1 and 2, men also reported greater Facet Alternatives than did women (Study 1 Ms = 4.96 vs. 4.40; F [1, 412] = 6.35, $p<.01$; Study 2 Ms = 4.81 vs. 3.98; F [1, 301] = 10.55, $p<.01$). These differences are relatively small in an absolute sense, and are consistent with previous findings (e.g., Duffy & Rusbult, 1986; Lin & Rusbult, 1995; Rusbult et al., 1998): Previous studies have demonstrated that sex differences in the Investment Model variables are somewhat unreliably observed, but that when women and men *do* differ, women tend to exhibit stronger commitment and greater dependence (higher satisfaction, poorer alternatives, greater investments) than do men.[4]

Discussion

Reliability and validity of the Investment Model Scale

Three studies provided evidence regarding the reliability and validity of the Investment Model Scale, an instrument developed to measure commitment level and three bases of dependence—satisfaction level, quality of alternatives, and investment size. To begin with, the instrument appears to have good internal structure: The items designed to measure each construct exhibit good reliability, with high item-total correlations and strong alpha coefficients. In general, factor analyses revealed four factors with no substantial cross-factor loadings. Thus, the Investment Model subscales have good internal consistency, and the instrument appears to measure four independent constructs.

In addition, we obtained good evidence regarding the convergent and discriminant validity of the scale. Given that commitment and the three bases of dependence are assumed to develop over the course of involvement with a specific partner—and given that these variables have been shown to support persistence and other pro-relationship behaviors—we expected that the Investment Model variables would exhibit moderate associations with other variables reflecting superior couple functioning. As anticipated, commitment and the three bases of dependence were moderately associated with dyadic adjustment (Spanier,

3. The interaction of participant sex with persisted versus ended status was significant for the facet measures of Alternatives and Investments: In relationships that persisted, women exhibited poorer facet Alternatives than did men; in relationships that ended, women and men exhibited equivalent facet Alternatives. In relationships that persisted, women and men exhibited equivalent facet Investments; in relationships that ended, women reported greater facet Investments than did men.

4. In Study 2, in comparison to men, women reported greater Predictability and Faith on the Trust Scale, along with greater Liking for their partners. In Study 3, women scored higher on the Affective Expression subscale of Dyadic Adjustment than did men. Women also exhibited less Self-Deception, greater Need for Affiliation, greater Importance of Collective Identity, and greater Private, Public, and Total Collective Self-Esteem.

1976), with the strength of influence subscale of the Relationship Closeness Inventory (Berscheid, Snyder, & Omoto, 1989), and with inclusion of other in the self (Aron et al., 1992), trust level (Rempel et al., 1985), and both liking and love for the partner (Rubin, 1970).

At the same time, we anticipated that responses to the instrument would not be unduly colored by individual differences. As noted earlier, the explanatory basis of the interdependence orientation rests on an analysis of the interdependence structure characterizing a given relationship, not on the personal dispositions of the involved persons. Accordingly, we expected that the Investment Model variables would exhibit relatively weak associations with instruments measuring a variety of personal dispositions. Consistent with expectations, commitment and the three bases of dependence were unrelated to—or only weakly related to—need for cognition (Tanaka et al., 1988), affiliation and independence needs (Eidelson, 1980), self-esteem (Hoyle, 1991), and perceived control over outcomes (Levenson, 1981). In addition, the four subscales were only weakly associated with measures of self-deception and impression management (Paulhus, 1991); these associations were weak in an absolute sense, and this is not particularly surprising in light of the demonstrated associations of commitment and the bases of dependence with tendencies toward positive illusion (e.g., Rusbult et al., 1998).

Study 3 also produced data regarding actual persistence in relationships, in order to assess the predictive validity of the Investment Model Scale. Two to 5 months following measurement of each Investment Model construct, we conducted telephone interviews to determine whether each relationship persisted over time, and to obtain measures of later adjustment for those relationships that endured. Among relationships that persisted, Time 2 adjustment was positively correlated with Time 1 commitment, satisfaction, and investments, and was negatively correlated with Time 1 quality of alternatives. Also, in comparison to relationships that persisted over time, relationships that ended exhibited the predicted pattern of Time 1 scores—relationships that ended by Time 2 exhibited lower Time 1 satisfaction, superior Time 1 alternatives, and lower Time 1 investment size. Importantly, individuals in relationships that ended by Time 2 reported substantially weaker Time 1 commitment. Indeed, model comparison analyses and effect size comparisons revealed that, in predicting later relationship status, commitment not only outperformed the three investment model variables, but also exceeded the predictive power of the Dyadic Adjustment Scale (Spanier, 1976), a frequently-employed criterion for assessing quality of couple functioning. Parallel results were obtained when we examined responsibility for breakup, in analyses comparing voluntary stayers, the abandoned (individuals whose partners ended the relationship), and voluntary leavers (individuals who themselves ended the relationship).

We also examined sex differences in levels of Investment Model variables. Sex differences were inconsistently observed, but we obtained some evidence that, in comparison to men, women reported higher satisfaction, poorer alternatives, greater investments, and stronger commitment. As noted earlier, some previous tests of the investment model have revealed sex differences; most such studies have not. The studies obtaining evidence of sex differences consistently have revealed findings such as those uncovered in the present research (e.g., Duffy & Rusbult, 1986; Lin & Rusbult, 1995; Rusbult et al., 1998). Thus, to the extent that women and men differ in mean levels of model variables, women are likely to exhibit greater dependence and stronger commitment than are men.

It is appropriate to comment on three specific findings from analyses examining the convergent and discriminant validity of our subscales: First, it is interesting that commitment and the bases of dependence by and large were unrelated to a measure of equity in the relationship (Walster et al., 1978). Satisfaction was weakly associated

with equity level, but commitment, alternatives, and investments were virtually unrelated to the equity in a relationship. These findings suggest that considerations of fairness—or at least, considerations of equity per se—may be largely irrelevant to the development of dependence and commitment in an ongoing relationship. It might be fruitful to explore such issues in future research, especially in light of the fact that the interdependence and equity orientations frequently are (incorrectly) perceived to advance parallel hypotheses.

Second, although the strength of influence subscale of the Relationship Closeness Inventory (Berscheid et al., 1989) exhibited a moderate association with commitment and the bases of dependence, these variables were only weakly associated with the diversity of contact subscale, and were unrelated to the frequency of contact subscale. It appears that although committed partners exert fairly strong influence over one another's lives, they do not necessarily engage in a wide range of activities together, nor do they necessarily spend enormous amounts of time together. Such findings suggest that the experience of commitment and the state of dependence have a good deal to do with the broad effects that partners exert on one another's lives, and have much less to do with their day-to-day behavioral "togetherness."

Third, commitment and investment size were weakly positively associated with the duration of relationships. Thus, commitment and investments unfold over time in the expected manner—roughly speaking, these variables exhibit a broad tendency toward cumulative accrual. At the same time, satisfaction level and quality of alternatives were unrelated to the duration of relationships. Consistent with our findings for frequency of contact, these variables are largely unrelated to purely temporal features of relationships—the mere passage of time is not sufficient to cause increasing satisfaction or declining alternatives.

Our findings for duration of involvement, frequency of contact, and diversity of shared activities have important implications for definitions of closeness based on such concrete, behaviorally based features of involvement (cf. Berscheid et al., 1989; Kelley et al., 1983). We believe that such definitions constitute an overly literal representation of interdependence constructs. At the very least, in conceptualizing closeness it seems important to take into account such qualities as the degree to which shared activities occur in life domains that are important to the involved partners, or the extent to which long-duration involvements effectively gratify partners' needs (cf. Drigotas & Rusbult, 1992). More generally, we suspect that, rather than devoting our energy to examining the concrete features of interaction, it may be more fruitful to focus on the stable motives that reliably emerge out of circumstances of interdependence, including phenomena such as commitment and trust (cf. Holmes & Rempel, 1989; Rusbult et al., 1994; Rusbult, Wieselquist, Foster, & Witcher, in press-b).

Tests of Investment Model predictions

Consistent with previous research examining the validity of Investment Model hypotheses, commitment exhibited the predicted associations with both global and facet measures of three bases of dependence (for reviews of this literature, see Rusbult, 1987; Rusbult & Buunk, 1993; Rusbult et al., 1994): Commitment was positively associated with satisfaction level, negatively associated with quality of alternatives, and positively associated with investment size. Indeed, all three bases of dependence accounted for unique variance in commitment level. Thus, once again we find that commitment is strengthened to the degree that an individual more powerfully depends on a relationship—to the extent that the individual wants to persist with a partner (experiences high satisfaction), feels bound to persist (has invested a good deal), and has no choice but to persist (possesses poor alternatives).

Also, analyses predicting breakup status revealed that the three bases of dependence were significantly predictive of

breakup. However, the collective effects of these three variables were no stronger than the effect on breakup of commitment level alone. Indeed, mediation analyses revealed evidence congruent with the claim that commitment level mediates the effects on breakup of satisfaction, alternatives, and investments. These findings are consistent with the results of previous studies demonstrating that, in predicting persistence and other pro-relationship behaviors, commitment partially or wholly mediates the effects of the three bases of dependence (e.g., Rusbult, 1983; Rusbult et al., 1998; Van Lange et al., 1997b).

Moreover, analyses examining responsibility for breakup revealed that, in comparison to voluntary leavers and voluntary stayers, the abandoned exhibited a pattern that might be termed "entrapment," or nonvoluntary dependence (cf. Thibaut & Kelley, 1959): The abandoned exhibited low Time 1 satisfaction, but had invested at a moderate level and possessed poor alternatives, and accordingly reported feelings of commitment that were as strong or stronger than that reported by voluntary stayers. These findings replicate previous results regarding the associations of Investment Model variables with breakup responsibility (e.g., Rusbult, 1983). For better or worse, strong commitment demonstrably promotes persistence in a relationship.

Recommendations for using the Investment Model Scale

Before closing, we should comment on three important "user issues." First, how should future researchers make use of the Investment Model Scale? In particular, is it necessary to include the facet measures of the three bases of dependence, or can the global measures stand on their own? In some research on the Investment Model we have employed a version of this instrument that excluded the facet items and observed reliabilities for the bases of dependence that were somewhat lower than those obtained in the present work (for example, without the facet items, alphas for the global measures of dependence tend to range from .55 to .85; e.g., Lin & Rusbult, 1995; Rusbult et al., in press). Therefore, in administering the four-variable Investment Model Scale, we believe that it is advisable to include both facet and global measures of the three bases of dependence (see Appendix). The facet items should be included to enhance measurement quality for the global items; the global items should be employed in formal analyses involving Investment Model variables (i.e., administer both facet and global items; analyze only global items).

At the same time, it is entirely appropriate to utilize the commitment subscale on its own, in the absence of either facet or global measures of the bases of dependence. Earlier, we described commitment as the psychological construct that influences everyday behavior in relationships—as the psychological experience that dependent individuals "carry around with them." Accordingly, it is relatively easy to access self-reported commitment. Indeed, in light of the strength of association between commitment and breakup, commitment level arguably is an excellent single indicator of overall couple adjustment. (Recall that in predicting breakup, commitment level outperformed the Dyadic Adjustment Scale, an "industry standard" for measuring quality of couple functioning.)

A second user issue concerns the participant population for which the Investment Model Scale is suitable. The present studies were based on samples of North American college students who were involved in ongoing dating relationships. Clearly, the dating relationships of North American college students are not representative of all extant romantic relationships. However, relatively good reliability and validity has been obtained when versions of this instrument were employed in research examining both marital relationships and gay and lesbian relationships (e.g., Duffy & Rusbult, 1986; Rusbult et al., 1998), as well as in research conducted in the Netherlands and in Taiwan (e.g., Lin & Rusbult, 1995; Van Lange et al., 1997b). Thus, we believe that it

is appropriate to employ the instrument in research involving a wide range of participant populations. In doing so, it would be desirable to tailor the instrument to the population under consideration (e.g., reword references to "dating partners" in research concerning marital relations).

A third user issue concerns the field's long-standing attachment to behaviorally based measures—a seduction that presumably has its origins in the behavioral tradition in psychology. Should we be troubled by the fact that the Investment Model Scale is a self-report instrument? The litany of our concerns with such measures is well-rehearsed, including worries that self-report measures may be colored by the desire to appear consistent or to present oneself favorably. Previous research on the Investment Model and related phenomena has demonstrated that self-reported commitment is associated not only with (a) the probability that a relationship will persist, but also with a variety of highly specific behavioral indices, such as (b) the amount of physical effort individuals are willing to exert for a partner by stepping up and down a stairstep (i.e., willingness to sacrifice), (c) the positivity of interaction behavior, as coded from videotaped couple conversations (i.e., tendencies to accommodate), (d) inclinations to cognitively disparage applicants for a "dating service" (i.e., derogation of alternatives), and (e) tendencies to employ plural pronouns in describing one's relationship (i.e., cognitive interdependence; e.g., Agnew et al., 1998; Drigotas & Rusbult, 1992; Felmlee et al., 1990; Johnson & Rusbult, 1989; Rusbult, 1983; Rusbult et al., 1998; Rusbult & Martz, 1995; Rusbult et al., 1991; Simpson, 1987; Van Lange et al., 1997b). Thus, it should be clear that the Investment Model constructs represent more than purely "in the head" phenomena. More generally, it is important to ask how one *could* measure an inherently subjective construct such as commitment other than via self-report. Thus, although we continue to believe in the desirability of behavioral measurement to augment self-report instruments, self-report methods are a highly suitable means of measuring Investment Model constructs.

Conclusions

Three studies demonstrated the reliability and validity of the Investment Model Scale, providing evidence of the convergent, discriminant, and predictive validity of this instrument. Investment Model variables are associated with the variables with which they should be associated, and are unrelated to the variables to which they should be unrelated. In addition, measures of Investment Model variables obtained at earlier research occasions effectively predict relationship outcomes measured at later research occasions. Previous research using similar instruments has demonstrated that commitment is a robust predictor not only of persistence, but also of pro-relationship motivation and willingness to exert effort or endure cost for the good of a relationship (e.g., willingness to accommodate, to sacrifice, to drive away tempting alternatives).

From a theoretical point of view, it is noteworthy that the Investment Model is embedded in Interdependence Theory, a prominent orientation for understanding interpersonal motivation and behavior. The Investment Model extends fundamental interdependence premises and constructs in such a manner as to illuminate our understanding of persistence and healthy functioning in ongoing relationships. The benefits of its embeddedness in Interdependence Theory should be clear: Researchers who seek to understand commitment processes can readily "link" with the broader theory, benefitting from the richness and comprehensiveness of an interdependence analysis.

We eagerly await further research on commitment processes, encouraging close-relationships theorists and researchers to move beyond the rather exclusive focus on positivity of affect (i.e., satisfaction, attraction, love) that traditionally has characterized our field. Clearly, feeling happy with a relationship is a good thing; at the same time, happiness and positive affect are not

by any means the whole picture when it comes to understanding persistence and pro-relationship motivation. It is by moving beyond an exclusive focus on positivity of affect that we can begin to more fully understand how and why some relationships persist and thrive over time whereas others do not. We hope that the existence of the Investment Model Scale will promote future research on commitment processes, thereby extending the interdependence orientation to understanding a variety of central processes in ongoing close relationships.

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Appendix

Satisfaction Level Facet and Global Items

1. Please indicate the degree to which you agree with each of the following statements regarding your current relationship (circle an answer for each item).

(a) My partner fulfills my needs for intimacy (sharing personal thoughts, secrets, etc.)	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(b) My partner fulfills my needs for companionship (doing things together, enjoying each other's company, etc.)	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(c) My partner fulfills my sexual needs (holding hands, kissing, etc.)	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(d) My partner fulfills my needs for security (feeling trusting, comfortable in a stable relationship, etc.)	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(e) My partner fulfills my needs for emotional involvement (feeling emotionally attached, feeling good when another feels good, etc.)	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely

2. I feel satisfied with our relationship (please circle a number).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

3. My relationship is much better than others' relationships.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

4. My relationship is close to ideal.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

5. Our relationship makes me very happy.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

6. Our relationship does a good job of fulfilling my needs for intimacy, companionship, etc.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

Quality of Alternatives Facet and Global Items

1. Please indicate the degree to which you agree with each statement regarding the fulfillment of each need in alternative relationships (e.g., by another dating partner, friends, family).

(a) My needs for intimacy (sharing personal thoughts, secrets, etc.) could be fulfilled in alternative relationships	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely

(b) My needs for companionship (doing things together, enjoying each other's company, etc.) could be fulfilled in alternative relationships	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(c) My sexual needs (holding hands, kissing, etc.) could be fulfilled in alternative relationships	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(d) My needs for security (feeling trusting, comfortable in a stable relationship, etc.) could be fulfilled in alternative relationships	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(e) My needs for emotional involvement (feeling emotionally attached, feeling good when another feels good, etc.) could be fulfilled in alternative relationships	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely

2. The people other than my partner with whom I might become involved are very appealing (please circle a number).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

3. My alternatives to our relationship are close to ideal (dating another, spending time with friends or on my own, etc.).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

4. If I weren't dating my partner, I would do fine—I would find another appealing person to date.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

5. My alternatives are attractive to me (dating another, spending time with friends or on my own, etc.).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

6. My needs for intimacy, companionship, etc., could easily be fulfilled in an alternative relationship.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

Investment Size Facet and Global Items

1. Please indicate the degee to which you agree with each of the following statements regarding your current relationship (circle an answer for each item).

(a) I have invested a great deal of time in our relationship	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(b) I have told my partner many private things about myself (I disclose secrets to him/her)	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely

(c) My partner and I have an intellectual life together that would be difficult to replace	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(d) My sense of personal identity (who I am) is linked to my partner and our relationship	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely
(e) My partner and I share many memories	Don't Agree At All	Agree Slightly	Agree Moderately	Agree Completely

2. I have put a great deal into our relationship that I would lose if the relationship were to end (please circle a number).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

3. Many aspects of my life have become linked to my partner (recreational activities, etc.), and I would lose all of this if we were to break up.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

4. I feel very involved in our relationship—like I have put a great deal into it.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

5. My relationships with friends and family members would be complicated if my partner and I were to break up (e.g., partner is friends with people I care about).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

6. Compared to other people I know, I have invested a great deal in my relationship with my partner.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

Commitment Level Items

1. I want our relationship to last for a very long time (please circle a number).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

2. I am committed to maintaining my relationship with my partner.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

3. I would not feel very upset if our relationship were to end in the near future.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

4. It is likely that I will date someone other than my partner within the next year.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

5. I feel very attached to our relationship—very strongly linked to my partner.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

6. I want our relationship to last forever.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

7. I am oriented toward the long-term future of my relationship (for example, I imagine being with my partner several years from now).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely