CHAPTER 14

Measuring Attachment
Legacy and Prospects

Everett Waters, Brian E. Vaughn,
and Harriet Salatas Waters

A first-year graduate student related this story to us. It was her freshman year at a distinguished West Coast university, and she was excited to be taking Introductory Psychology from a renowned developmental psychologist. After an excellent lecture on social development, discussion turned to career prospects in developmental psychology. Asked about possibilities for an academic career in attachment study, the professor granted that there had been some very innovative work in the area. Nonetheless, in his view, attachment study had more or less run its course; something new might be a better bet. This was the mid-1980s. Fortunately, our student was not dissuaded. For most of the work covered in this volume was initiated and bore fruit after that lecture. Clearly, attachment study was nowhere near having run its course. With increasingly sophisticated theoretical and measurement tools, we continue to have great expectations for the future of attachment study.

LEGACY

Attachment study was born in the twilight of behaviorism and operationalism. Both were influential in developmental psychology into the mid-1970s. Many of our own graduate instructors were confident that psychology must keep to observable phenomena and that theoretical concepts must be defined in terms of the operations by which one measures them. Today's students, though, find it impossible to imagine that the study of emotion was, so recently, an anathema in influential circles. Or that these waning paradigms could have

mounted such a determined defense against emerging cognitive, biological, and evolutionary perspectives. Yet this was the context in which John Bowlby was trying to formulate a new perspective on emotional bonds, and Mary Ainsworth was offering up naturalistic observations of infant care in Uganda. What we know as attachment theory was yet to be formulated. Moreover, the only data were clinic and field observations. There were no measures or measurements, only Mary Ainsworth's observations. Yet here we are, four decades on, with much to report and much to do.

We are not sure how interested John Bowlby was in measurement per se. But he clearly appreciated the value of empirical evidence. Mary Ainsworth was quite familiar with classical measurement theory. Indeed, her PhD thesis was a scale construction project on the measurement of Blatz's security construct in adults. Moreover, she worked for years as a psychodiagnostician and psychometrician at the Sheppard and Enoch Pratt Hospital, and in private practice in Baltimore. She clearly viewed ethological observation as a complement to psychometric methods. Interestingly, Ainsworth rarely discussed psychoanalysis or used psychoanalytic terminology around her laboratory. Yet it seems likely that her familiarity with the complexities of psychoanalytic theory contributed to her skills as an observer. Not that she looked at attachment behavior through a psychoanalytic lens; she did not. But the way in which psychoanalytic theory incorporates context, complex connections, requires convergent evidence, and so forth, and most of all, its focus on meaning, is mirrored in Ainsworth's ethological perspective on behavior—both reflect a systems perspective.

Theory and Measurement

The success of the attachment paradigm is attributable in large part to John Bowlby's recognition that biology, rather than physics, is the better model for developmental science in general and for attachment in particular. Cambridge afforded Bowlby a solid scientific education, and he saw no way forward for attachment theory other than a solid scientific framework grounded in empirically accessible concepts. At the same time, he recognized that attachment is a biological phenomenon, a product of evolution, the solution to a puzzle. We are not free to define or measure it to fit some idealized view of science or methodology. The theory had to meet the phenomenon on its own terms. This meant a back-and-forth between theory and measurement. This is central to the construct orientation described by Cronbach and Meehl (1955). One section of this classic article, "Specific Criteria Used Temporarily: The Bootstraps Effect," describes a dynamic in which preliminary construct definitions suggest initial measurement strategies and criteria. These serve well enough to test predictions from the preliminary theory and support revisions. The revised theory points to more adequate measurement and more refined tests of increasingly refined predictions. And on we go, pulling ourselves up by our own bootstraps—from only a sketch of a theory and uncertain measurements

to better measurement and better-defined constructs. Toward a more comprehensive, parsimonious, internally consistent, testable, empirically supported theory. Importantly, there is nothing random about this process. Strategy is critical at every step; this is what makes it interesting. Nor is the goal a perfect or permanent theory. We hope only to build a solid enough foundation for useful understanding and perhaps a usefully coherent defense in the face of a new paradigm (see Kuhn, 1962/2012) or as Imre Lakatos (1970) would have it, to maintain a progressive research program.

The contributors to this volume all understand and play this game quite well. Their own work and their contributions here reflect sophisticated perspectives on behavior, key constructs such as security, and measurement. Each of the chapters illustrates the value of focusing on meaning, as well as methodology, in research design and interpretation of results. The effort is not to publish the most articles but to move the theoretical ball down the field. There is little room here for instrument-driven research or a mere search for significant correlations. Theory and measurement, theory and measurement. Tests of hypotheses that would require significant theoretical change if they failed—what Meehl called "dangerous tests." These, as much as anything, account for the good health and good prospects of attachment study (see Waters, Bretherton, & Vaughn, 2015).

Conveying Implicit Knowledge

Much of the shared knowledge that defines a paradigm is implicit—recognizable, but not necessarily verbalizable, by every seasoned practitioner. For the first decade or two, attachment theory seemed a somewhat closed affair. One heard reference to an "attachment mafia," which we accepted as a play on "Minnesota mafia," a reference to the leadership roles of Institute of Child Development faculty in the Society for Research in Child Development. In fact, it was more likely an allusion to the fact that Mary Ainsworth and her students dominated the field of play. Even seasoned researchers were finding it difficult to succeed in an entirely new paradigm.

In retrospect, the problem was not that attachment theory and research were poorly presented. Both Bowlby and Ainsworth wrote with exceptional clarity. The problem was communicating across paradigms. Indeed, Sroufe and Waters (1977) were truly surprised when more than a few readers received their essay "Attachment as an Organizational Construct" as a virtual *Rosetta Stone*. Perhaps, situated as they were at Minnesota's Institute of Child Development, squarely on the solid middle ground of developmental psychology, their language was more accessible. More likely, the paper worked because it conveyed quite a bit of information that was in the air, implicit, common currency, readily available in the hallways of Mary Ainsworth's lab and at the Institute—but had not found a place in scholarly writing.

It is easy to underestimate how much such implicit knowledge contributes to a paradigm's coherence. Now, researchers who had the advantage of being,

so to speak, present at the creation are retiring. It is important to make sure that this information is not retired with them. Next generations would simply have to spend time rediscovering it. Thus, a primary goal of these chapters has been to make explicit the relation to theory, the premises, strategies, and expectations underlying the development and use of key attachment measures.

Posada, Waters, Vaughn, Pederson, and Moran (Chapter 1), Vaughn, Waters, and Teti (Chapter 2), and Waters, Vaughn, and Bernard (Chapter 3) have provided valuable information about the thinking and insights underpinning maternal sensitivity scales, the Strange Situation, and the Attachment Q-set. In doing so, they have gone well beyond the information in training manuals and research reports. Yet their most valuable contribution may be their characterizations of attachment behavior as it looked through Mary Ainsworth's eyes and in her best descriptive writing. Similarly, Carlson (Chapter 4) and Solomon, Duschinsky, Bakkum, and Schuengel (Chapter 5) convey a great deal of information about disorganized attachment and their struggle to view such unexpected behavior in own right, while also trying to find its place in current attachment theory. Much of this work depends on intuition and tentative hypotheses that may only serve as bridges to empirical tests—information that may never find its way into scholarly reports but is critical to appreciating, conceptualizing, and measuring attachment disorganization, whether within the ABC (avoidant, secure, ambivalent or resistant) attachment framework or otherwise.

Early on, critics often dismissed attachment study as "Strange Situation research." Bowlby had always recognized the relevance of attachment across the lifespan and was keen to preserve psychoanalytic insights about the relevance of early experience to later relationships. However, without age-appropriate measures, Ainsworth and her students gave little thought to following infants into adulthood. The emergence of the Adult Attachment Interview (AAI; Main & Goldwyn, 1985–1995) opened the door to testing hypotheses about attachment across the lifespan and focused attention on Bowlby's ideas about attachment representation and defensive processes. It also opened the door to criticisms that attachment theory was a theory of close relationships in infancy and in adulthood, with a great deal in between left to the imagination (see Waters, Kondo-Ikemura, Posada, & Richters, 1991). Kerns and Siebert's (Chapter 6) and Allen's (Chapter 7) discussions of measurement for middle childhood and adolescence demonstrate how much has been done to develop measures after infancy, and how much more there is to do. They also convey valuable information about the importance of keeping the secure base center stage in attachment theory, and the ways in which doing so has facilitated the design of innovative, age-appropriate measures beyond the separation–reunion paradigm.

H. Waters and T. Waters (Chapter 8) have addressed address an issue that arises with cognitive development in middle childhood and reaches forward to the AAI. What do attachment representations represent? Although work on script-like attachment representations is rooted in cognitive psychology rather

than attachment theory, H. Waters and T. Waters provide another example of how keeping the secure base concept center stage, even when it is not initially clear how to implement this, is a powerful strategy.

First encounters with the AAI often leave an impression of overwhelming complexity. This fades in the course of formal workshops on AAI scoring. However, many researchers and practitioners want first to understand the goals of such extensive training. In addition, even greater numbers of developmentalists and researchers from other disciplines need only to understand the AAI well enough to follow the research literature or to evaluate it for inclusion as a secondary measure in projects that are not primarily focused on attachment. Crowell (Chapter 9) specifically addresses these audiences. Details give way to meaning in this clear portrayal of the measurement strategy, its goals, and key insights that are both measurement-related and contributions to attachment theory.

Also focusing on adult attachment narratives, T. Waters and Facompré (Chapter 10) have highlighted the question, "What happened to the secure base concept when attachment moved to the level of representation?" They note that the use of different core constructs (secure base in early years and narrative coherence in the AAI) poses a significant problem for the coherence of attachment as a lifespan theory. Looking at attachment narratives much the way Mary Ainsworth looked at behavior, they find that they are replete with secure base-related expectations and vignettes. Moreover, the script-like structure of this material facilitates an individual's conformity with Grice's maxims of conversational cooperation, which is the favored explanation for AAI coherence. Thus, script-like representations of early secure base experience are not displaced by narrative coherence; they play a significant role in creating it. This elegant solution to a difficult problem again illustrates a view to complexity and organization that was characteristic of Mary Ainsworth's ethological observations and rating scales. It demonstrates again the value of keeping the secure base concept center stage and of focusing on ordinary (as opposed to attachment-specific) cognitive processes. The problem solving illustrated here is a useful template for new research on different modes of attachment representation. But, again, research journals have little room for the implicit knowledge underpinning such work.

Feeney (Chapter 11) and Maier, Bernier, and Corcoran (Chapter 12) have illustrated the use of methods from social and experimental psychology to study the secure base concept. Behaviorists and learning theorists criticized early generations of Bowlby–Ainsworth attachment researchers as muddle-headed for their dependence on naturalistic observation and correlational/individual-differences analyses. As a result, the first generations of attachment researchers acquired something of an aversion to experimental methods and the roles of learning in attachment development. Paradigm shifts take time. Fortunately, recent generations of attachment researchers are entirely comfortable exploiting the full range of methods and tools from both

individual-differences and experimental paradigms, and are becoming more sophisticated about the roles of associative and social learning. They also feel comfortable exploring the different facets of attachment representation. Good experimental design is as much a skill as good behavioral observation. It can be hard to convey to attachment researchers who have focused primarily on individual differences. Much as earlier chapters help us see attachment behavior through Mary Ainsworth's eyes, Feeney and Maier et al. illustrate how experimentalists can peer into attachment behavior under controlled conditions, without doing violence to its organization or meaning.

Finally, George and West (Chapter 13) have illustrated the value of exploring different facets of attachment representation and the importance of remaining open to multiple methodologies. Although the projective method is associated with the psychodynamic perspective, in the hands of George and West, it is primarily a method for exploring associative meaning, more open-ended but ultimately not unlike the priming methods discussed by Maier et al. Most importantly, Chapter 13 conveys a great deal about the intuitive sense for the secure base phenomenon and attachment representations that underpins the AAI and other narrative methods. This is valuable information for both experimentalists and clinicians. It also opens new doors for convergent and discriminant validation of attachment measures from middle childhood to adulthood.

Each of our authors has worked hard to explicate implicit information that we too often take for granted and that is not easily accessible outside their research groups. They have also highlighted and clarified the roles of theory and strategy in attachment measurement. In doing so, they have illustrated the advantage of some background in psychometrics and philosophy of science. (See Nunnally & Bernstein, 1994; Ghiselli, Campbell, & Zedeck, 1981; Godfrey-Smith, 2003; Okasha, 2016.) We find that we depend on such material every day. Yet neither is standard fare in current developmental psychology graduate programs.

PROSPECTS

Research on attachment measurement has far outpaced anything John Bowlby or Mary Ainsworth could have expected. This success ensures the continued good health of attachment study in general. Although the chapters in this volume represent only a subset of the most widely used measures and measurement strategies, the commonalities speak to core aspects of the attachment paradigm—a perspective on behavior, the secure base phenomenon, naturalistic observations as a validity criterion, and a focus on meaning rather than on mere procedures. The contributors have done a great service by explicating premises, strategies, and intuitions that are important to new generations of attachment researchers but find little room in formal reports.

Multiple Facets of Relationships

Looking forward, several tasks seem to deserve high priority in attachment measurement research. These include expanding theory and measurement to address facets of attachment relationships beyond maternal sensitivity and confidence in caregiver/partner's availability and responsiveness. Robert Hinde (1976) addressed the multifaceted architecture of close relationships in his paper "On Describing Relationships." Although he is addressing relationships in general, his discussion of relationship patterns including diversity in interaction content, reciprocity versus complementarity, qualities of interactions, exclusivity, intimacy, and so forth. These are easily adapted to attachment relationships across age. For example, we might find, at any age, reliable differences among relationships in (1) the extent to which they focus on emergency support versus support for exploration and enrichment, (2) the limits of trust, (3) the contexts in which friction and ruptures arise, their function in the relationship, and how they are resolved, or (4) schemas and script-like representations that reflect individual or relationship history (see T. Waters & Facompré, Chapter 10, this volume; Young, Klosko, & Weishaar, 2003). If we could instantiate multiple relationship facets as measures, we could determine whether they point to a single latent security construct or to distinct facets. We could also see whether the hypothesis that early experience establishes a prototype for later relationships is better supported in some facets than in others. The possibilities here should be a significant impetus to renew interest in observing relationships in naturalistic settings.

Additional tasks highlighted in this volume include the need for (1) more comprehensive information on the correlations among attachment measures; (2) additional observations of secure base behavior in various contexts and at the full range of ages now covered by laboratory assessments; (3) attention to the consistency, coherence, and motivation of secure base support across age; (4) attention to attachment's role as a moderator in studies of other processes and mechanisms (logically, the opportunities here far outnumber cases in which attachment is a primary causal mechanism); and (5) expanded integration with cognitive science and computational modeling.

Attachment measures are often a student's first encounter with the practical meaning of key attachment concepts and issues. As they become skilled using a particular measure to address research questions, they also learn to recognize the contexts in which attachment theory is relevant. Eventually, with much experience across many trials, often augmented by teaching and training their own students, they acquire the expectations and fluency characteristic of experts. In addition to compiling a great deal of technical information, the contributors to this volume would have gone to great lengths to articulate insights and intuitions essential to attachment study. In sharing the crown jewels of attachment study, they have done much to ensure its continuing good health. We are pleased to have afforded them the opportunity and the space to do so.

REFERENCES

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*(4), 281–302.

Ghiselli, E., Campbell, J. P., & Zedeck, S. (1981). *Measurement theory for the behavioral sciences*. New York: Freeman.

Godfrey-Smith, P. (2003). *Theory and reality—An introduction to the philosophy of science*. Chicago: University of Chicago Press.

Hinde, R. A. (1976). On describing relationships. *Journal of Child Psychology and Psychiatry, 17,* 1–19.

Kuhn, T. S. (2012). *The structure of scientific revolutions* (50th anniversary ed.). Chicago: University of Chicago Press. (Original work published 1962)

Lakatos, I. (1970). Falsification and the methodology of scientific research programmes. In I. Lakatos & A. Musgrave (Eds.), *Criticism and the growth of knowledge: Proceedings of the International Colloquium in the Philosophy of Science* (Vol. 4, pp. 91–195). New York: Cambridge University Press.

Main, M., & Goldwyn, R. (1985–1995). *The Adult Attachment Interview Classification and Scoring System*. Unpublished manuscript, University of California at Berkeley, Berkeley, CA.

Nunnally, J. C., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Okasha, S. (2016). *Philosophy of science: A very short introduction* (2nd ed.). New York: Oxford University Press.

Sroufe, L., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48,* 1184–1189.

Waters, E., Bretherton, I., & Vaughn, B. E. (2015). Preface. In M. D. S. Ainsworth, M. Blehar, E. Waters, & S. Wall (Eds.), *Patterns of attachment: A psychological study of the Strange Situation* (pp. x–xxxvi). New York: Taylor & Francis/Psychology Press.

Waters, E., Kondo-Ikemura, K., Posada, G., & Richters, J. (1991). Learning to love: Mechanisms and milestones. In M. Gunner & L. A. Sroufe (Eds.), *Minnesota Symposium on Child Psychology: Vol. 23. Self processes and development* (pp. 217–255). Minneapolis: University of Minnesota Press.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. New York: Guilford Press.

Guilford Publications
370 Seventh Avenue
New York, NY 10001
212-431-9800
800-365-7006
www.guilford.com