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From Internal Working Models to Script-like Attachment Representations

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The idea that we know something best when we know it from its beginning has a long history in philosophy and the natural sciences. For Aristotle, to know something is to have its *archae* (ἀρχή), its origin, its foundations, ever in mind. In psychology, this entails describing the course of development in detail and also identifying plausible mechanisms of action and developmental change. This essay focuses on the roles of script-like representations of secure base experience in attachment behavior and development. Scripts are not the only mode of mental representation in play during attachment interactions and development but they illustrate the descriptive and explanatory roles ordinary (as opposed to attachment specific) cognitive processes can play in attachment theory and research.

Freud's emphasis on the enduring influence of early experience was one of the distinctive features of his theory. John Bowlby considered this an important insight with great significance for both prevention and adult psychotherapy. In his view, the origins of attachment lie in countless experiences of using the primary caregiver as a secure base from which to explore and as a haven of safety. These experiences lead to expectations about caregiver availability and responsiveness and eventually to internal working models (IWMs), which, in turn, help guide behavior and emotion, and help simulate possible courses of action in close relationships.

While acknowledging the heuristic value of the IWM concept, Hinde (1989) felt compelled to note that, "... in the very power of such a model lies a trap: It can easily explain everything" (p. 378). That is, an attachment theory built upon an overly broad IWM concept lacks definition and risks becoming the theory that "all good things go together". Attachment theorists' sensitivity to this problem is evident in recent reviews (e.g., Bretherton & Munholland, 2008). However, the problem is more than a matter of clear definition. For example, it is not obvious that all the functions attributed to IWMs require anything as complex as a mental model. Moreover, humans are not particularly good at manipulating any but the simplest mental models in real time (Epstein, 2014). Thus, on almost any formulation, IWMs would likely require too much information and effort (not to mention being too slow) to play the roles Bowlby had in mind in ongoing attachment interactions. Here, we propose exploring additional modes of mental representation that might be relevant

to attachment interactions and relationships – returning to IWMs once we know better what can be explained without them.

Using Basic Cognitive Processes to Explicate Attachment Representation

Cognitive psychologists have investigated a wide range of representational processes that bear on encoding, retrieving, and responding to real-world experiences. These include verbal associations, concepts, narrative structures such as scenes and episodes, schemas, plans, prototypes, expectations, and even sensory and visual imagery. Each of these can play a role in how we represent, retrieve, and revise attachment-related experiences and how they bear on current and future affect, cognition, and behavior in relationships.

In cognition, as in other domains, parsimony suggests looking to ordinary, well-studied mechanisms before proposing new, domain-specific ones. Approaching the “attachment representation” or IWM concept in terms of specific modes of mental representation gives students of attachment access to the rich toolkit and library of empirical results cognitive psychologists have assembled. Working with concepts and results from cognitive psychology can help us to make specific predictions about how attachment-related experiences, representations, behaviors, memories, and emotions arise and interact. We expect that many of the functions currently covered by a very broadly drawn IWM concept can be explained in terms of specific modes of representation and processing that are already well known in cognitive psychology (e.g., Markman, 2013; Nelson & Fivush, 2004). To paraphrase Richard Dawkins (1998), this kind of rigor may seem like taking the beauty out of the rainbow. However, it is a valuable step toward insuring the long-term good health of attachment study.

Defining and measuring script-like representations of attachment-related experience

Scripts are schematic representations of the temporal-causal structure and commonalities in recurring events. For example, Schank and Abelson (1977), suggested that repeated visits to a variety of dining establishments results in a Restaurant Script (look at menu, order food, eat, pay, leave). Scripts generate expectations and help prepare and organize ongoing behavior. They also have motivational significance, not because they have the power to impel behavior but because activating mental representations of goals lowers the threshold to enact behavior. Scripts also play an important role in reconstruction and retrieval processes when we recall past experiences (Abelson, 1981).

Bretherton (1991) pointed out the relevance of scripts as representations of attachment-related experiences. This raises the question, what kind of attachment-related experiences are likely to lead to significant script-like representations? Should we follow the lead of psychoanalysts who emphasized the importance of emergency responses, trauma, and the ensuing emotional distress? Or, following upon Bowlby’s insights about the significance of ordinary (i.e., non-traumatic) experiences, focus on salient facets of everyday parent-child or adult-adult interactions?

Working from Ainsworth’s ethological descriptions in Uganda and Baltimore, her (and our own) extensive experience with the Strange Situation (SSP), and our own home observations with the Attachment Q-set, we decided to focus specifically on the secure base concept. That is, on the key recurring elements in secure base excursions and returns to define a “secure base script” (see *Table 1*).

Table 1 - Elements and Structure of The Secure Base Script

1. A child (or infant) and mother (or two adult attachment partners) are constructively occupied.

2. They are interrupted by an event or another actor. The infant (or one adult) is distressed.
3. There is a bid for help.
4. The bid for help is detected and help is offered.
5. The offer of help is accepted.
6. The help is effective in overcoming the difficulty.
7. The help includes effective comforting and affect regulation.
8. The pair return to (or initiate new) constructive interaction.

With this in mind, Waters and Waters (2006) designed the Attachment Script Assessment (ASA) to determine whether an individual has summarized early attachment experiences in terms of a secure base script. The ASA consists of several sets of 12-14 prompt-words, each loosely suggesting the outline of a mother-child or adult-adult interaction. While supporting a wide range of possible stories, each prompt-word set implicitly suggests a secure base story line. If secure base organization was characteristic of an individual's attachment experiences, the prompt-words will (implicitly) activate an underlying secure base script. This, in turn, establishes an interpretive set that shapes story production. Although first used with adult participants, the ASA has been adapted for use in adolescence and middle childhood, and across cultures.

Individuals are asked to review a prompt set and formulate a brief (typically 75 to 300 words) narrative passage which is then recorded and transcribed. Passages are scored on a 7-point scale of secure base script organization. Scores from multiple prompt-sets can be averaged to increase reliability. Unlike AAI scoring, which requires detailed attention to narrative structure and language use, ASA passages are simply scored in terms of the extent to which a passage is organized around the secure base script. *Table 2* illustrates (a) a narrative with extensive secure base organization and (b) an equally well-formed narrative that reflects little or no secure base structure – both produced from the same prompt-word set.

Table 2 — Doctor's Office Prompt Word Outline

Tommy	hurry	mother
bike	doctor	toy
hurt	cry	stop
mother	shot	hold

Example Narrative With Clear Secure Base Script Structure

Tommy was out riding, tumbles off his bike and gets hurt. So he calls out for his mother and she says let's hurry to the doctor to make sure that everything is okay. Meanwhile, Tommy is afraid of getting a shot and starts to cry. So mom calms him down and says, don't worry about getting a shot, the booboo will go away and you'll feel better. The mother holds Tommy while the doctor bandages his cut and gives him a shot. Afterwards the mother says, "Let's get you a toy for being so brave." Tommy picks out a favorite action figure and they go home. Mom sits down with Tommy and tells him he'll be good as new.

Example Narrative Lacking Secure Base Script Structure

Tommy asked his mother if he could go outside to ride his bike. The mother said yes, and after a little time, she heard Tommy crying. She ran outside and saw that Tommy had gotten hurt. He was bleeding quite a bit and she hurried to call the doctor. At the very least, he was going to need a tetanus shot. When they arrived the doctor's office the waiting room was full of children. Some were crying. Others were playing with toys. The doctor quickly stopped Tommy's bleeding with a bandage. He even let Tommy hold his stethoscope while he got his tetanus shot. This was a lot of excitement for one day and Tommy and his mother were glad to get home.

Validation studies

Correlations reflecting convergent validity among and across mother-child and adult-adult prompt word sets ranged from $r = .50-.90$ (Waters & Waters, 2006). Confirmatory factor analysis in an independent sample confirmed that mother-child and adult-adult prompt-word sets assess a single, generalized secure base script (Waters, *et al.* 2015).

ASA script knowledge scores have been linked to offspring's SSP classifications and secure base behavior at home (Tini, Corcoran, Rodrigues-Doolabh, & Waters, 2003; Vaughn *et al.* 2007). In addition, recent studies have shown that AAI coherence, ASA script knowledge, and early caregiving experiences are significantly correlated in a variety of samples (Steele, *et al.*, 2014; Schoenmaker *et al.*, 2015). Finally, ASA scores based on culturally adapted prompt-word sets yield quite similar means and correlates in samples from USA, Switzerland, Romania, Colombia, Zimbabwe, and Turkey, among others (see Waters & Roisman, 2019 and Waters & Waters, 2020 for reviews of additional validation studies).

Looking Forward

The secure base script concept is a valuable tool for highlighting, clarifying, and helping resolve issues surrounding attachment representations and the IWM concept. Consider several questions that would be hard to formulate or have proven intractable as questions about IWMs.

Is the secure base concept replaced by narrative coherence in adulthood?

Current attachment theory is beset by something of a paradox (critics might call it a deep incoherence). Simply put, while infant attachment theory is explicitly built on the secure base concept; much of adult attachment theory and research in developmental psychology focuses on AAI "coherence". This raises two questions. First, where did the secure base concept go in adult attachment theory? Second, how can we justify instead focusing adult attachment theory and research on the coherence of AAI narratives.

Thinking that there must be at least some secure base content in adult attachment narratives,

Waters and Facompré (2020, in press) searched a set of AAI transcripts and found them replete with examples of secure base vignettes and secure-base-related expectations. Evidently, the salience and significance of the secure base concept *is not* diminished in adulthood. This should not be surprising in light of the demonstrated relevance of secure base use and support behaviors in adult marital interactions (Crowell *et al.*, 2002). Moreover, the secure base script concept casts light on the mechanisms underlying AAI coherence, its link to Grice's (1975) maxims (quantity, quality, relation, manner), and its many correlates. From a cognitive perspective, script-like representation of secure base experience facilitates conformity with Grice's maxims - guiding content retrieval, orderly unfolding of the narrative, identifying key events to relate, and a sense for how much material is required for a complete explanation. Although narrative coherence remains a valuable lens through which to view AAI transcripts, it is useful to have in mind that it arises from and reflects, rather than replaces, representations of secure base experience. The secure base concept remains attachment theory's key descriptive insight and core organizing construct throughout development. This resolves what appeared to be a difficult paradox. It is also a promising step toward realizing Bowlby's (*e.g.*, 1980, p. 37) goal of eventually replacing many abstract trait and psychodynamic concepts with more rigorous and empirically accessible explanations from the emerging field of cognitive psychology.

Should we expect to find avoidant and resistant scripts?

Probably not. At least, Waters and Facompré (2020, in press) found no evidence of avoidant or resistant scripts in their review of AAI transcripts for secure base script content and additional attachment scripts/schemas. In the infant SSP, avoidance and resistance are brief responses to particular moments in reunion episodes. In both groups, they point to diffusely unskilled secure base use and elevated patterns of fussing and negative affect. In brief, avoidance or resistance in SSP reunions does not point to trait-like "avoidant" or "resistant" behavior styles in the laboratory or at home. How then would they abstract avoidant or resistant scripts? Moreover, it is not clear that the kinds of avoidant or resistant behavior observed in the SSP has the kind of recurring elements and temporal-causal structure necessary to abstract script-like representations.

Can the secure base script formulation clarify the multiple working models concept?

Beginning with Bowlby (1980), attachment theorists have pointed out that individuals often construct multiple, potentially inconsistent, working models of their primary attachment figures. Main (1991) and others have suggested that conflict among inconsistent (or incoherent) working models can help explain a wide range of anxiety and dissociative phenomena.

Scripts can cue both generalized and context-specific expectations. On occasion, this can result in incompatible expectations or behavioral options being activated concurrently. The same situation can arise when a given script generates different expectations in different contexts (*e.g.*, caregiver will provide competent support during problem solving; caregiver often loses composure during emergencies). Although incompatible script-based expectations may shed some light on the multiple models concept, it is not clear that it can account for the wide range of relationship problems and anxiety attributed to conflict among multiple working models.

Does a cognitive approach ignore emotion?

On the contrary, a cognitive perspective can help formulate issues about attachment and emotion in a manner that is both clearer and more testable than current attachment/IWM formulations. Emotion theorists have long recognized that confirmations and violations of expectations are among the most frequent occasions for emotional experience and expression (e.g., Epstein, 2014). The ability of script-like representations to instantly and effortlessly generate/cue expectations about the self, others, and the environment makes them powerful prompts to emotion, action and adaptation in everyday life.

Does the secure base script concept have implications for clinical applications?

By definition, evidence-based therapies offer well-established methods for effecting therapeutic change. However, their underlying theories do not always provide a strong rationale for what to target in therapy. In contrast, attachment theory provides a rich list of targets for intervention. These range from specific aspects of parenting and marital behavior to secure base and exploratory behavior across ages and contexts. The secure base script also suggests an interesting perspective on trust between patient and therapist and in patients' other relationships. Combining evidence-based intervention methods with work on the secure base script (and related ideas about attachment representations) suggests a promising direction for research and a valuable organizational/developmental framework within which to formulate assessment and intervention (e.g. Bosmans, 2016; Young, Klosko, & Weishaar, 2003).

Conclusion

John Bowlby's theoretical insights and Mary Ainsworth's ethological observations provide some of the most evocative images in developmental psychology. They are the *archae*, the foundations, for understanding attachment across age and cultures. Here we have suggested that contemporary cognitive psychology can advance the clarity and testability of attachment theory and research questions. Our work on the secure base script is but one inviting example. The prospects ahead seem brighter than ever.

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