

## Critical Issues

### Adaptive dissociation: Information processing and response to betrayal

M. Rose Barlow  
Jennifer J. Freyd  
University of Oregon

This Critical Issues column is adapted from a chapter to appear in *Dissociation and the Dissociative Disorders: DSM-V and Beyond*, to be published by Routledge. It appears here with the kind permission of the book's editors, Paul F. Dell and J. A. McNeil. This column proposes a view of dissociation as a set of characteristics, including information-processing tendencies, that can be organized into two branches of symptoms. A dissociative information processing style is developed as an adaptation to trauma, and is a way to remain unaware of information that threatens a necessary attachment relationship.

#### A Proposed Framework: Two Branches of Dissociation

Dissociation can be viewed as a set of characteristics that consists of two separate but connected branches. Branch A consists of "normative" types of dissociative activity that are not caused by trauma. Examples include highway hypnosis, fantasy, and voluntary identity alteration (e.g., in religious rituals). These examples are transient states of dissociation. In contrast, Branch B has a trauma-based etiology. Examples of Branch B include depersonalization, identity confusion, involuntary identity alteration, and possibly somatoform symptoms. Branch B dissociation may itself consist of several sub-branches.

Dividing dissociation into branches is consistent with factor analyses of the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) conducted by Ross and colleagues (Ross, Ellason & Anderson, 1995). The analyses revealed three factors measured by the DES: absorption-imagination, activities of dissociated states, and depersonalization-derealization (Ross, et al., 1995). In our framework, Branch A dissociation is measured by the first factor, absorption-imagination. The other two factors make up Branch B dissociation; the existence of these factors argues for a possi-

ble further division of the Branch B symptoms.

The two classes of symptoms are not unrelated. For example, it is possible that characteristics such as fantasy-proneness and absorption (Branch A symptoms) facilitate the development of Branch B dissociation later in life, given sufficient trauma and betrayal (Pekala, Angelini & Kumar, 2001). However, little research has assessed different types of dissociative experiences in young children and compared them longitudinally to types of symptoms experienced in adulthood. Future research should address the relationships between Branch A and Branch B symptoms.

Our conceptualization of dissociation as two branches of symptoms allows a place for both broad and narrow views of dissociation, and combines the continuum and taxon views of dissociation. It also allows the field to study both severe dissociation caused by trauma and less severe dissociation, which can be either trauma-based or an altered state of consciousness. Further, it allows these two conceptualizations of dissociation to be separated from each other, so that researchers and clinicians can decide where to focus their efforts.

#### Dissociation as an Information Processing Style

Definitions of dissociation from differing theoretical viewpoints agree that dissociation allows memories, skills, emotions, and other knowledge to be stored in less easily-accessible ways. Studies conducted with non-diagnosed college student participants have shown interesting results regarding the interactions of attention, memory, and dissociation. Although it is debatable how well their results generalize to actual memories and experiences of abuse, these studies nevertheless provide an intriguing look at the advantages and cognitive processes of dissociation.

DePrince and Freyd (1999) found that performance on the Stroop task was related to the attentional demands of the task such that high dissociators (DES > 20) per-

formed worse in a selective attention task and better in a divided attention task relative to low dissociators (DES < 10). The high dissociators also recalled fewer sexual trauma words and more neutral words compared to the low dissociators. These results suggest that non-pathological dissociation is a distinct style of information processing.

Becker-Blease, Freyd & Pears (2004) partially replicated the results of DePrince and Freyd in a sample of four- and five-year-olds that included 48 children with no reported abuse and 20 children with parent-reported abuse histories. Becker-Blease and colleagues found that dissociation levels alone did not predict memory scores under either selective or divided attention conditions. However, the combination of abuse history and dissociation scores did predict memory performance. These findings provide further support for the idea that abuse may lead to a distinctive attention style that includes dissociation and memory differences.

De Ruiter and colleagues (2003) found that high dissociators in a college population had an advantage in both selecting and dividing attention relative to low dissociators. In this study, nonspecific threat words, but not neutral words, helped only the high dissociators reduce reaction time in detecting a relevant characteristic of the words. Low dissociators overall performed worse than did the high dissociators. Like DePrince and Freyd, this study supports the assertion that divided attention is a situation in which a high level of dissociation is differentially adaptive. In a smaller study, Veltman and colleagues (2005) found that high dissociators performed better than did low dissociators on two different working memory tasks. In addition, the high dissociators recruited relevant brain networks more highly than did the low dissociators.

Further evidence of a distinctive information processing style comes from the work of Dorahy and colleagues. DID par-

ticipants reported more anxiety in a negative context than did depressed and general population groups (Dorahy, Middleton & Irwin, 2005). Whereas DID participants showed reduced cognitive inhibition in a negative but not a neutral context, the performance of the other two groups in the neutral and negative contexts did not differ. Furthermore, the DID participants displayed an attentional bias that slowed their reactions to negative, but not neutral words; this result did not occur in the other two groups. This experiment provides support for the theory that anxiety differentially affects the ability of high dissociators to process information.

A related line of research used different methodology to examine information processing in dissociation. In a directed forget-

## abuse by a parent or other trusted caregiver is more likely to evoke amnesia and/or dissociation than is abuse by a stranger.

ting paradigm with a college student sample, DePrince and Freyd (2001; 2004) again found that high dissociators recalled fewer trauma and more neutral words when divided attention was required, compared with low dissociators. This interaction effect has also been analyzed elsewhere (see DePrince, Freyd, and Malle, 2007). DePrince and Freyd concluded that high levels of dissociation helped block traumatic information only in situations where that information could not be ignored.

Elzinga and colleagues conducted a directed forgetting experiment within and across the alternate identities of 12 patients with DID who could switch on demand (Elzinga, Phaf, Ardon & van Dyck, 2003). Consistent with participants' reports of inter-identity amnesia, they recalled more words when tested in the same identity who had read the words than when tested across identities. When tested within an identity, there was a lack of forgetting for the to-be-forgotten (TBF) words. However, when tested across identities, directed forgetting functioned so that TBF words were recalled less frequently than were to-be-

remembered words. Switching identities may be a strategy that people with DID use to block out unwanted information (Elzinga, et al., 2003).

Additional investigation of dissociation and memory processing suggests fundamental differences in the way memory is organized in persons with DID. In one study (Barlow, under review), DID participants showed a decreased ability to answer detailed questions about a story containing fear, compared with a neutral story. This decrement did not occur in a student comparison group. The ability of DID participants to answer questions about the gist of the stories was unaffected by emotional valence. DID participants reported that they gave less attention to details during the fearful story because they were "spaced out,"

trying not to switch, or actively switching (Barlow, under review). Putnam (1994) suggested that during the switch process, persons with DID have an impaired capacity to observe stimuli, to learn, and to form new

memories.

In a study with 30 DID participants, one-third of participants reported some amnesia for childhood events that were emotionally significant, but non-traumatic (van der Hart, Bolt & van der Kolk, 2005). The DID participants reported fragmented, sensory recall of traumatic memories. Unexpectedly, they also reported fragmented, somatosensory memories for *non-traumatic* significant events. The authors suggested that a key feature of dissociation is a reduced integration of sensory information with autobiographical memory, possibly due to impaired hippocampal functioning (van der Hart, et al., 2005).

In addition to absolute memory loss, people with DID are less able to access the information they have. They honestly report amnesia for information that can be recalled by other personalities, or information accessible by alternate testing methods. In one participant with DID, mutually amnesic alternate identities reported no transfer of information on explicit memory tests, although some of the implicit tests showed some "leakage" of information (Nissen,

Ross, Willingham, MacKenzie, and Schacter, 1988). These authors hypothesized that this pattern of results was due to differences in the stimuli. Stimuli that were interpretable without knowledge-based processing were most likely to leak; stimuli that required interpretation and gist in order to be understood did not leak. In two studies, Eich and colleagues (1997a; 1997b) reported that while there was no explicit transfer of knowledge between amnesic identities, there was some leakage of information when measured on tests that used priming, such as picture-fragment completion.

### What Leads to High Trait Dissociation?

According to Freyd's (1996) betrayal trauma theory, when a young child is abused by a parent or caregiver, the need to attach and the need to avoid cheaters/betrayers come into direct conflict. Withdrawing from or confronting the betrayer threatens attachment and survival in direct and indirect ways. In such situations, it is more adaptive not to know that traumatic betrayal has occurred or is occurring. Thus, betrayal trauma theory proposes that people become blind to betrayal to the extent that being aware of it would threaten a relationship upon which they are profoundly dependent (Freyd, 1996).

According to betrayal trauma theory, the purpose of dissociation is not to escape from pain, but to maintain an attachment relationship (Goldsmith, Barlow & Freyd, 2004). Thus, abuse by a parent or other trusted caregiver is more likely to evoke amnesia and/or dissociation than is abuse by a stranger. We conceptualize dissociation as an adaptive response to a bad situation. Simultaneously, dissociation may also be a maladaptive form of information processing that could increase the likelihood of revictimization in the future (DePrince & Freyd, in press).

### Strengths and Weaknesses of the Two-Branch Model

Our conceptualization of dissociation as two branches allows a place for both the broad and narrow views, and combines the continuum and the taxon views of dissociation. The two-branch model also allows the field to study both severe and less severe dissociation. The two-branch model is consistent with factor analyses and with theo-

*continued on page 7*

rists who view dissociation as an alteration in information processing abilities. Potential weaknesses of this model are: (a) it may be over-inclusive, and (b) it may rest (implicitly or explicitly) on perceived etiology. Much of the experimental evidence that supports dissociation as an adaptive style of information processing is based on one-dimensional measurements of dissociation. Most laboratory research has measured dissociation as a unitary construct, which, in turn, may affect the specificity, applicability, and generalizability of findings about dissociation.

Further research is necessary in order to determine how the various symptoms fit together as branches of a tree. Researchers should analyze their results in terms of different dimensions of dissociation and should include a dimensional approach in experimental designs. Tasks should be devised that differentially access and differentiate among various components of dissociation. For example, can laboratory tasks be constructed that induce depersonalization, independent of derealization?

Longitudinal studies are needed to examine possible developmental relationships between Branch A and Branch B symptoms. Other trauma symptoms (e.g., alexithymia, impaired social decision-making) may be connected to dissociative information processing, but these variables have not often been studied in relation to dissociation (DePrince & Freyd, in press). Factor analysis and meta-analysis are useful techniques that have been infrequently applied to studies of dissociation. Such methods could help researchers obtain a clearer understanding of the multifaceted construct of dissociation.

## References

- Barlow, M. R. (under review). Memory for complex material in dissociative identity disorder.
- Becker-Blease, K. A., Freyd, J. J. & Pears, K. C. (2004). Preschoolers' memory for threatening information depends on trauma history and attentional context: Implications for the development of dissociation. *Journal of Trauma & Dissociation*, 5, 113-131.
- Bernstein, E. M. & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous & Mental Disease*, 174, 727-735.
- DePrince, A. P. & Freyd, J. J. (1999). Dissociative tendencies, attention, and memory. *Psychological Science*, 10, 449-452.
- DePrince, A. P. & Freyd, J. J. (2001). Memory and dissociative tendencies: The roles of attentional context and word meaning in a directed forgetting task. *Journal of Trauma & Dissociation*, 2, 67-82.
- DePrince, A. P. & Freyd, J. J. (2004). Forgetting trauma stimuli. *Psychological Science*, 15, 488-492.
- DePrince, A. P. & Freyd, J. J. (in press). Trauma-induced dissociation. In M. J. Friedman, T. M. Keane & P. A. Resick (Eds.), *PTSD: Science & Practice - A Comprehensive Handbook*. Guilford Press.
- DePrince, A. P., Freyd, J. J., & Malle, B. F. (2007). A replication by another name: A response to Devilly et al. (2007). *Psychological Science*, 18, 218-219.
- de Ruiter, M. B., Phaf, R. H., Veltman, D. J., Kok, A. & van Dyck, R. (2003). Attention as a characteristic of nonclinical dissociation: an event-related potential study. *NeuroImage*, 19, 376-390.
- Dorahy, M. J., Middleton, W. & Irwin, H. J. (2005). The effect of emotional context on cognitive inhibition and attentional processing in dissociative identity disorder. *Behaviour Research and Therapy*, 43, 555-568.
- Eich, E., Macaulay, D., Loewenstein, R. J. & Dihle, P. H. (1997a). Implicit memory, interpersonality amnesia, and dissociative identity disorder: Comparing patients with simulators. In J. D. Read & D. S. Lindsay (Eds.), *Recollections of Trauma: Scientific Evidence and Clinical Practice* (pp. 469-474). New York: Plenum.
- Eich, E., Macaulay, D., Loewenstein, R. J. & Dihle, P. H. (1997b). Memory, amnesia, and dissociative identity disorder. *Psychological Science*, 8, 417-422.
- Elzinga, B. M., Phaf, R. H., Ardon, A. M. & van Dyck, R. (2003). Directed forgetting between, but not within, dissociative personality states. *Journal of Abnormal Psychology*, 112, 237-243.
- Freyd, J. J. (1996). *Betrayal trauma: The logic of forgetting childhood abuse*. Cambridge, MA: Harvard University Press.
- Goldsmith, R. E., Barlow, M. R. & Freyd, J. J. (2004). Knowing and not knowing about trauma: Implications for therapy. *Psychotherapy: Theory, Research, Practice, Training*, 41, 448-463.
- Nissen, M. J., Ross, J. L., Willingham, D. B., MacKenzie, T. B. & Schacter, D. L. (1988). Memory and awareness in a patient with multiple personality disorder. *Brain and Cognition*, 8, 117-134.
- Pekala, R. J., Angelini, F. & Kumar, V. K. (2001). The importance of fantasy-proneness in dissociation: A replication. *Contemporary Hypnosis*, 18, 204-214.
- Putnam, F.W. (1994). The switch process in multiple personality disorder and other state-change disorders. In R. M. Klein & B. K. Doane (Eds.), *Psychological Concepts and Dissociative Disorders* (pp. 283-304). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Ross, C. A., Ellason, J. W. & Anderson, G. (1995). A factor analysis of the Dissociative Experiences Scale (DES) in dissociative identity disorder. *Dissociation*, 8, 229-235.
- van der Hart, O., Bolt, H. & van der Kolk, B. A. (2005). Memory fragmentation in dissociative identity disorder. *Journal of Trauma and Dissociation*, 6, 55-70.
- Veltman, D. J., de Ruiter, M. B., Rombouts, S. A. R. B., Lazeron, R. H. C., Barkhof, F., van Dyck, R., et al. (2005). Neurophysiological correlates of increased verbal working memory in high-dissociative participants: A functional MRI study. *Psychological Medicine*, 35, 175-185.

## ISSTD NEWS

8201 Greensboro Drive, 3rd Floor  
McLean, VA 22102  
Phone: (703)610-9000

E-mail: [info@isstd-d.org](mailto:info@isstd-d.org) <http://www.isstd-d.org>

Editor Ruth A. Blizard, PhD  
Founding Editor Bennett G. Braun, MD

Graphic design: Rita Bauer

Executive Director: Gregg Robinson, CAE

### ISSTD EXECUTIVE COUNCIL 2007-2008

President  
Catherine Classen, PhD

Past President Eli Somer, PhD  
Directors Remy Aquarone, MSc  
Suzette Boon, PhD

President-Elect Vedat Sar, MD  
Lisa Butler, PhD  
Etzel Cardena, PhD

Secretary/Treasurer Annita B. Jones, PsyD  
Janina Fisher, PhD  
Andreas Laddis, MD  
George F. Rhoades, Jr., PhD  
Joanne Twombly, MSW, LICW

**Subscription Rates:** If you are interested in subscribing to ISSTD News, contact ISSTD headquarters at 703-610-9000 for membership information.

Subscriptions are available only as a benefit of ISSTD membership.

Opinions expressed in articles contained herein are those of the authors, not necessarily of the International Society for the Study of Trauma and Dissociation (ISSTD) or of its individual members. ISSTD encourages contributions representing a diversity of viewpoints and disclaims any responsibility for making a substantive review or assessment of the accuracy or validity of the contents thereof.

©2007 International Society for the Study of Trauma and Dissociation

Thank you to Sheppard Pratt Health Systems for their generous sponsorship of the ISSTD News