

# Characters in Contexts: Identity and Personality Processes that Influence Individual and Family Adjustment to Brain Injury

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A multidimensional perspective regarding the nature of identity formation and the structure of personality is applied to the processes that contribute to individual and family adjustment to brain injury. This perspective maintains that personality is pluralistic and that the “self” is composed of multiple selves who vary in their personality characteristics and in the extent to which they play a role in the life of the individual and family. A brain injury can cause drastic alterations in identity and the structure of the self as a result of changes in personal traits and abilities, social context, and family dynamics. Rehabilitation can more effectively facilitate the reconstruction of identity if the unique configuration of multiple selves in the individual and family is taken into account.

A long history of thought in psychology explores the concept of personality as a nonunitary phenomenon. In William James’ (1890/1950) writing on the structure of self, the concepts of “various selves” and “potential selves” are fundamental to his conception of the nature of self-organization. These seminal thoughts have been elaborated by thinkers as diverse as Freud (1962) and Jung (for review, see Fordham, 1976) and have received contemporary support in the experimental work of Hazel Markus (Markus & Nurius, 1986; Markus & Kitayama, 1991). These ideas have had an enormous influence on applied work in psychotherapy where many scholars have drawn on the concept of self-pluralism as an important avenue for intervention (e.g., Perls, Hefferline, & Goodman, 1951; Jung, 1933, 1969) with a variety of current writers focusing on “inner child” work, especially as applied to cases of sexual and physical abuse and trauma (Bass & Davis, 1988; Bishop & Grunte, 1992).

People typically experience a sense of a unified self characterized by an “I” or a “me” as well as a coherent autobiographical

narrative. This narrative rests on memories of previous experiences, which have been interpreted in the context of social, emotional, and cognitive parameters that contribute to the nature as well as to the understanding of these events. This unified sense of self is dynamic and functions to reflect a variety of life experiences and developmental processes. For example, one may have a different sense of self in the context of being a college student than one has as a parent.

Despite this unified awareness of self, perspectives from philosophy (Locke, 1956; Humphrey & Dennet, 1989; Barresi, 1999), anthropology, (Rosaldo, 1995) sociology (Goffman, 1959, 1986), psychology (Markus & Nurius, 1986; McAdams, 2001; Bruner, 2002; Lewis, 2001), and neuroscience (Sperry, 1985; Levy & Trevarthen, 1976; Cimino, Verfaellie, Bowers, & Heilman, 1991; Vanderhaeghen 1986) converge on a conclusion that much of the dynamic nature of self-definition rests on the existence of multiple selves. These various selves are present and can interact with each other and with the world in a dynamic and seamless fashion under normal circumstances. They are associated with narrative constructions that serve to define and contextualize them. As Bruner (2002) stated:

There is no such thing as an intuitively obvious and essential self to know, one that just sits there ready to be portrayed in words. Rather, we constantly construct and reconstruct our selves to meet the needs of the situations we encounter, and we do so with the guidance of our memories of the past and our hopes and fears for the future (p. 64).

A variety of models have been proposed to further elaborate on the concept of multiple selves. These range from the notion of “possible selves” (Markus & Nurius, 1986) to a more formal proposition that there are well-developed “characters” that compose normal personality and that emerge as actors depending on the context and task at hand (Watanabe-Hammond, 1988; Kramer, 2000). These perspectives are not mutually exclusive, nor do they necessarily presuppose a continuum: conceivably, different characters (in Watanabe-Hammond’s framework) could have alternative possible selves that could be called upon or invoked under different circumstances.

As William James and others have described, an individual has many options available regarding the self, and these options are constrained in myriad ways by genes, environment, and their interaction. For example, the “thin” self may be in the realm of possibilities for some but not others. The extent to which such a self is possible is then subject to social and cultural dynamics that render it desirable or undesirable. In the process of developing a self-concept, we attach ourselves to some of these possible selves and not to others, hence creating an emotionally-charged identification with their viability. When we adopt a self, we imbue it with the power to influence our well-being, our contentment with our situation in life, and our sense of ourselves as productive and valuable. When a conflict arises between self-definition and self-manifestation, identity is challenged on a fundamental level and the options for current as well as future selves may have to be re-evaluated.

According to Markus and Nurius (1986), possible selves represent individuals’ ideas of what they might become, what they would like to become, and what they are afraid of becoming. Possible selves derive from cognitive representations of the self in the past and include representations of the self in the future. They are influenced by personal experiences and by social contexts that provide models (both positive and negative) for what one could become. Possible selves can also be past selves, a self-view that may be activated under certain circumstances and become influential in directing behavior, such as in a visit home over the holidays (Markus and Nurius, 1986).

In empirical work investigating possible selves, Markus and Nurius (1986) found that individuals were easily called upon to reflect on their possible selves, and that these selves (defined as past selves, now selves, ever-considered selves, and probable selves) were significant predictors of self-esteem, positive affect, and sense of personal control. Furthermore, people reported far more positive than negative ever-considered possible selves, and the possibilities for future positive selves were not particularly constrained by their current or now selves. However, negative

past selves predicted the extent to which they were likely to believe that those characteristics could describe them in the future.

The work of Markus and colleagues provided experimental support for the ideas of Watanabe-Hammond (1988) who argued that individuals have a “cast of characters” who interact with each other and with (the characters of) others in unique and idiosyncratic ways. Markus and Nurius (1986) note that possible selves can “vary dramatically in their degree of affective, cognitive, and behavioral elaboration” (p.957). In the therapeutic context of Watanabe-Hammond’s conception, such possible selves can be identified by name, age, and a developmental context in which they were conceived. They can also evolve and “grow” in the course of therapy, or, from another perspective, the narrative about who they are, how they feel, and what they are capable of doing can change. This suggests that, theoretically, characters can have “possible selves”, or put differently, that characters, as more elaborated selves, can have alternative avenues of behavior or expression. Characters can also become more or less salient depending on the situation. To use the example supplied earlier, it is a common experience that a visit to one’s childhood home or family seems to “bring out” a particular character, or characters, who may differ markedly from those typically engaged in our adult lives. This dynamic can be thought of in terms of “windows” on a computer screen; one might have several programs open at once, with only one that is “up front”, while the others are hidden behind it, or partially occluded, but still readily accessible. Another window with different content and capabilities can be brought forward depending on the circumstances and context of the task at hand.

Echoing James’ notion of the self to which one becomes attached, Markus and Nurius (1986) also suggest that “Some conceptions of the self, because of their importance in identifying or defining the self, are likely to be chronically accessible” (p. 957). Cast of character work would further elaborate on this notion by suggesting that the degree to which some characters are “up front” would depend on the circumstances. The configuration of characters and their relative salience can change and evolve, especially in the event of radical changes in the environment, but also in the context of self-reflection or counseling.

### **Narrative as the Mechanism for Self-Organization**

Characters, or possible selves, are constructed, maintained, and transformed via the narratives that describe them. Possible selves develop as individuals try out and adopt different personality traits and ways of being. These selves are constructed via the stories that we tell and repeat to ourselves, as well as in the stories about our selves that we share with others. Narratives are created by individuals to tell a story about their lives and the nature of their social and personal identities. The role of language is unique to the human experience, and Dennet (1991) suggested that just as spiders spin webs, individuals innately employ language to construct and communicate narratives of which the development of selves is the main product. Although we may experience our autobiographies as a single unfolding story, that story is taking

place on a stage where each character in the cast is playing a distinct role. These roles are implicit in the narratives we construct. Inherent in the process of using language to tell stories about life experiences is the representation of characters and possible selves. We actively organize our reality in the process of creating stories about who we are and we people that world with unique characters and possible selves. These actors signify as well as arbitrate our beliefs about the events of our lives and our actions and transactions as a result of and in response to those events. The story being told is not a dry rendition of the “facts” as they occurred, but rather is a dynamically constructed tale of the past, present, and future. This tale does not depend on facts, although it may be constrained by facts. Hence, as stated by Lewis (2001, p. 75) human beings have the capacity to alter the past in light of the present.

Through the process of constructing a narrative, characters and selves emerge, with some characters constantly reappearing in different scenes, and other characters playing minor roles. The process of constructing the past in the present moment influences an individual’s conception of accessible characters and possible selves. Narratives function to create a coherent but flexible account that represents the past in a way that allows the individual and his or her characters to develop new insights, to change and grow, and to influence the construction of current and future characters and possible selves.

### **The Impact of Brain Injury on the Structure of the Self**

The impact of brain injury on the sense of self has been previously discussed in the literature. However, there has been little discussion of these issues from the perspective of a plural self. In the following sections we will use case examples from a person who was right-brain-injured in a violent assault during a camping trip in which her fiancé was murdered and she was left for dead (co-author JPR) to illustrate some of the issues to be discussed. These examples were drawn from the context of her psychotherapy with co-author WH. Therapist WH was trained in character work by its creator, Watanabe-Hammond (1988), and this approach was used extensively in the course of therapy.

Functional changes in physical, cognitive, and emotional capabilities set the stage for the change, addition, or diminution of options for self-definition, or possible selves. For example, before her brain injury, JPR loved to dance and was an excellent dancer. After the injury, the compromised left side of the body made dancing, at least as she had known it, impossible, and for many years her focus was on simply learning to walk. One of JPR’s characters consequently disappeared for many years, reemerging only when a new context became available that made her feel as if she were “dancing.” With the re-emergence of this character, it became clear that the ability to dance was a focal point of a treasured identity that included other characteristics such as flirting, bantering, and being playful.

Nochi (1998) identified a set of themes that emerge around a “loss of self” in the narratives of people with acquired brain injuries. These include a loss of a sense of clear self-knowledge,

which has two components. One component is a result of memory blanks or knowledge gaps, such as the inability to remember events before or after the injury. Such gaps can make it difficult for the individual to construct a narrative that integrates the past self with the present self, causing confusion and distress. In the case of JPR, fragmented memories of the days leading up to the assault, along with mere snatches of memories immediately prior to the attack and after, were associated with terror and a feeling of a lack of control. The nameless, faceless assailants could not be confronted or imagined except in nightmares and there was no opportunity to obtain any real closure around the death of her fiancé. It took many years in therapy to realize that a part of herself was still “in the tent” (where the assault occurred) and that active steps were needed to mourn, and to let go, of the possible self that was engaged to be married to her deceased fiancé.

The other component has to do with functional changes in cognitive, emotional, or physical capabilities that are unfamiliar, unpredictable, confusing and disturbing, and that are not well-understood by the individual or by others around him or her. Nochi (1998) referred to this experience as “the opaque self.” A common experience after damage to the one hemisphere of the brain is the experience of hemi-neglect, where the opposite side of the body is not integrated into a person’s awareness of his or her body as a whole. JPR called her parents in the middle of the night while she was in the hospital, terrified that someone was trying to get into bed with her. Indeed, she was alone in the bed; it was her left side that she was experiencing as alien and not a part of her. The process of becoming aware that some experiences were inexplicable in terms of her previous self-knowledge and that she had to reconfigure the parameters that defined herself and her abilities was one of the earliest challenges after her brain injury. The process of redefining, however, can take a very long time, and it is common for people to find themselves in situations that either disrupt or require revision of possible selves, even years later (Johansen, 2002; Osborne, 1998).

A second theme for people with acquired brain injury is a discontinuity between who they were before and who they are in the present (Osborne, 1998; Stewart, 2000). Previous narratives about the self may no longer fit as well, or at all, and the process of re-authoring (Nochi, 1998) those narratives involves not only discovering a new self or selves but also mourning for the lost self or selves. For JPR, there was an extended period in which she struggled to accept her inability to move around easily. She could no longer drive a car nor could she walk effortlessly. The loss of autonomy in terms of mobility was very much at odds with her view of her professional self as a successful business woman who traveled all over the country on business trips. Fearful that giving up her past professional self meant accepting a new identity as a person with a disability, she was frustrated and angry and often in despair about her options for a vocation. She longed for her previous job and constantly questioned her own judgment for taking a leave of absence to try something new overseas, which is where the injury occurred. When circumstances drove her to fight for her right to accessible transportation, for the first time she met and began interacting with other disabled women who exemplified new models for power and desirability as a woman with a disability.

ity. These experiences provided her with options for possible selves that eventually led to her co-founding an award-winning women's resource center at a rehabilitation hospital.

The third theme identified by Nochi (1998) is that of loss of self in the eyes of others. Changes in physical, cognitive, and emotional functions can affect the status of an individual in a variety of ways. Changes in appearance may affect both one's self-image and the way one is perceived by society. Such changes may affect characters and possible selves differently depending on gender, age, race, and class (Root, 2000). The ability to perform one's previous job may be compromised. The emphasis in our culture on autonomy and individual self-sufficiency leads to value judgments that may not favor people with brain injuries (Mukherjee, Heller & Alper, 2001). For example, in the United States, adults are expected to live separately from their parents, vocational capability is the source of status and worth, and asking for help and assistance can be seen as a sign of weakness. As a teenager, getting her first job had been a tremendous source of self-esteem for JPR. Going home to her parent's house after discharge from the rehabilitation hospital was an enormous loss of the independence JPR had previously enjoyed and greatly valued. As mentioned above, even a visit to one's family home can bring out previous selves. Returning home to live after the loss of a fiancé, a job, and the use of the left side of her body not only brought out previous selves for JPR but severely curtailed the perception of future autonomous selves.

### **Reconstructing the Self: Implications for Rehabilitation**

Considerations regarding the structure of the self in the process of adjustment to acquired brain injury become especially important in the rehabilitation process. In the context of acute medical care, the emphasis is on the survival of the person with an injury, and families typically rely on the judgment and expertise of the medical staff with regard to decision-making. In contrast, the process of rehabilitation involves an individual who is acting in some capacity as an agent of the self, and doing so in the context of a family and a society. Thus, the goals of rehabilitation differ from those of acute care, and the therapeutic considerations within the rehabilitation context involve fostering adjustment to life with a disability.

Effective rehabilitation services include more than simply providing the mechanics of rehabilitation (e.g., speech therapy). Effective rehabilitation involves an understanding of how to contextualize a person with acquired brain injury within the medical context, the family context, and the larger social context, and also to have a working understanding of the relationships and dynamics among the different contexts. The extent to which rehabilitation professionals can foster adjustment to acquired brain injury will depend on part on how well they can foster self-conceptions that encourage engagement with the rehabilitation process. In other words, the extent to which the practical goal of skill retraining will be successful depends not only on the intellectual, physical, and behavioral capacities possessed by the person with a brain injury, but also on the availability of possible selves to accept and promote such learning. These self-conceptions, furthermore, exist

in a family context where each individual character has his or her own perspective on the situation and will be interacting with each other and with those of the person with the brain injury. These interactions will be influenced in complex ways by the changing contexts within which the various characters find themselves in the process of dealing with the injury.

This approach becomes even richer when the pluralistic structure of the self is taken into consideration. Characters can be expected to interact differently with each other, family members, and rehabilitation providers depending on the unique challenges they face as a result of changes in emotional, physical, and social capabilities. Some characters and their possible selves may not be altered directly by the actual injury, but all will be challenged by new emotional and developmental tasks as a result of reacting to other changing selves and characters, family members and rehabilitation providers. Some characters may need to find new ways to express themselves, such as the example of JPR's character who disappeared for many years after the brain injury. Characters who have been "hidden" on the computer screen for much of a person's life may come to the fore and dominate the interactions the person with brain injury has with others. These characters may be unfamiliar to family members and contribute to alienation and distress. The same may also be true of family members who are profoundly affected by the changes that accompany a brain injury in the person and in their social, financial, and emotional lives. These life changes may elicit different characters or engage possible selves that had not previously been evident.

The existence and repertoire of one's possible selves has important implications for behavior. Individuals are more likely to pursue activities that are consistent with the self-concept available to them. Elliott, Witty, Herrick and Hoffman (1991), identified the importance of hope in adjustment to brain injury and disability. Hope, in this case, has two components: (a) a sense of agency, or an individual's determination to meet personal goals; and (b) a sense of pathways, or an individual's sense that they can find ways to meet those goals. From the perspective of possible selves, it is unlikely that an individual would be able to access a sense of agency or pathways, despite a wish to do so, in the absence of a specific possible self for whom such experiences can be envisioned.

Furthermore, the nature of one's possible selves can have an enormous effect on reactions to events and situations because they provide a framework within which to interpret them. Nochi (1998) suggested that people with acquired brain injury can minimize the negative influence of change in their self-concept when they have a story of eventual recovery in their self-narratives. For example, if one can define oneself as someone who can continue improving this definition of self will provide a buffer against a sense of loss. The availability of such self-definitions will likely reflect the organization of one's possible selves. If a self has been activated by the circumstances of a brain injury that is convinced of failure, or that cannot access a sense that improvement is possible, it will be all the more difficult to construct a narrative of recovery. Conversely, a possible self that is viewed as capable of success will allow the individual to believe in eventual progress.

The opportunity to engage in a dialogue that explores the various realities of the characters is critical to the process of re-constructing the life stories of the individual and family members in a way that provides meaning and the possibility of growth and self-fulfillment. Honoring the autonomy of the person and family while promoting their safety and stability can be a balancing act that requires remarkable skill. Rehabilitation providers can explore, in collaboration with the individual and family, their experiences of changes in their previous views of themselves, and provide the opportunity to grieve the loss of previously-treasured selves. They can also explore the experiences of the individual and family with regard to current possible selves and help to negotiate realistic assessments of the options available. This may involve facing painful truths about one's current abilities or fostering an openness to new and creative possibilities for self-expression.

### Conclusions

A brain injury is a sudden and negative change that radically interrupts an interdependent selfhood. Individuals with brain injuries and their families will be best served if systems of care can take into account, either implicitly or explicitly, the reality of the multiple aspects of selves that characterize each actor in a network of interconnected systems that constitutes our social universe (Donnelley, 1998). Brain injury is a type of disability that is often associated with the sudden onset of mental and physical limitations. As a disability, brain injury is "experienced at the intersection of the person and the environment" (Pledger, 2003, pp. 281). Rehabilitation professions can work in conjunction with families to realistically assess the strengths that exist within the individual's theater of possible selves, and also assess how those possible selves might interact with strengths situated in the larger environmental context. The process of adjusting to a brain injury and subsequent narrative re-construction involves many stakeholders, including the individual with a brain injury, rehabilitation providers, family members, and friends. Rehabilitation providers are situated in a unique position to assist in reintegrating the individual with a brain injury and his or her unique cast of characters within the larger environmental context.

#### Authors' Note

We wish to acknowledge the members of the Rehabilitation Institute of Chicago and the Hastings Center project on mapping the moral domain of traumatic brain injury for providing a discussion forum that contributed to the ideas formulated in this manuscript. We are profoundly grateful to Sandra Hammond for developing and teaching the therapeutic approach referred to as cast of character work.

### References

- Barresi, J. (1999). On becoming a person. *Philosophical Psychology*, 12, 79-98.
- Bass, E. & Davis, L. (1988). *The courage to heal: A guide for women survivors of child sexual abuse*. New York: Harper & Row.
- Bishop, J. & Grunte, M. (1992). *How to love yourself when you don't know how: Healing all your inner children*. New York: Station Hill Press, Inc.
- Bruner, J. (2002). *Making Stories: Law, Literature, Life*. New York: Farrar, Straus, and Giroux.
- Cimino, C., Verfaellie, M., Bowers, D., & Heilman, K.M. (1991). Autobiographical memory: Influence of right hemisphere damage on emotionality and specificity. *Brain and Cognition*, 15, 106-118.
- Dennet, D.C. (1991). The origins of selves. In D. Kolak & R. Martin (Eds.) *Self and identity: Contemporary philosophical issues* (pp.355-364). New York: Macmillan Publishing Company.
- Donnelley, S. (1998). Human nature, views of. In R.F. Chadwick (Ed.) *Encyclopedia of Applied Ethics* (617-625). San Diego, CA: Academic Press.
- Elliott, T.R., Witty, T.E., Herrick, S., & Hoffman, J.T. (1991). Negotiating reality after physical loss: Hope, depression, and disability. *Journal of Personality and Social Psychology*, 61, 608-613.
- Fordham, F. (1976). Archetypes of the collective unconscious. *An introduction to Jung's psychology*. Harmondsworth, Middlesex: Penguin Books.
- Freud, S. (1962). *The ego and the id*. J. Riviere, (Trans.), & J. Strachey, (Ed.). New York: W.W. Norton & Company, Inc. (Original work published 1923).
- Goffman, E. (1959). *The presentation of self in everyday life*. New York: Doubleday.
- Goffman, E. (1986). *Stigma: notes on the management of spoiled identity*. New York: Simon and Schuster Inc.
- Humphrey, N. & Dennet, D.C. (1989). Speaking for ourselves: An assessment of Multiple Personality Disorder. *Raritan*, 9, 68-98.
- James, W. (1890/1950). *The principles of psychology* (Vol.1). New York: Dover Publications, Inc.
- Johansen, R.K. (2002). *Listening in the silence, seeing in the dark: Reconstructing life after brain injury*. Berkeley, CA: University of California Press.
- Jung, C.G. (1933). *Modern man in search of a soul*. (W.S. Dell & C.F. Barnes, Trans.). New York: Harcourt, Brace and World, Inc.
- Jung, C.G. (1969). *The collected works of C.G. Jung: Vol. 8. On the nature of the psyche* (R.F.C. Hull, Trans.). Princeton, NJ: Princeton University Press.
- Kramer, C.H. (2000). *Therapeutic mastery: Becoming a more creative and effective psychotherapist*. Phoenix, AZ: Zeig, Tucker and Co., Inc.
- Levy, J., & Trevarthen, C. (1976). Metacognition of hemispheric function in human split-brain patients. *Journal of Experimental Psychology: Human Perception and Performance*, 2, 299-312.
- Lewis, M. (2001). Issues in the study of personality development. *Psychological Inquiry*, 12, 67-83.
- Locke, J. (1956). *Essay Concerning Human Understanding*. Chicago: Gateway Editions. (Original work published in 1690).
- Markus, H. & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954-969.

- Markus, H.R. & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224-253.
- McAdams, D.P. (2001). The psychology of life stories. *Review of General Psychology*, 5, 100-122.
- Mukherjee, D., Heller, W. & Alper, J.S. (2001). Social and institutional factors in adjustment to traumatic brain injury. *Rehabilitation Psychology*, 46, 82-99.
- Nochi, M. (1998). "Loss of self" in the narratives of people with traumatic brain injuries: A qualitative analysis. *Social Science & Medicine*, 46, 869-878.
- Osborn, C.L. (1998). *Over my head*. Kansas City, MO: Andrews McMeel Publishing.
- Perls, F., Hefferline, R.F., & Goodman, P. (1951). *Gestalt therapy: Excitement and growth in the human personality*. New York: Dell Publishing Co., Inc.
- Pledger, C. (2003). Discourse on disability and rehabilitation issues: opportunities for psychology. *American Psychologist*, 58(4), 279-284.
- Root, M.P.P. (2000). Rethinking racial identity development. In P. Spickard & W.J. Burroughs (Eds.) *Narrative and multiplicity in constructing ethnic identity*. Philadelphia: Temple University Press.
- Rosaldo, M.Z. (1984). Toward an anthropology of self and feeling. In R. A. Shweder & R. A. Levine (Eds.) *Culture theory: Essays on the mind, self, and emotion*. (pp. 137-157). New York: Cambridge University Press.
- Sperry, R.W. (1985). Consciousness, personal identity, and the divided brain. In D. F. Benson & E. Zaidel (Eds.) *The dual brain: Hemispheric specialization in humans*, (pp.11-26) New York: Guilford Press.
- Stewart, E. (2000). Ascribed and acquired identities: Women's collective renegotiation of social and personal identity following brain injury (Doctoral dissertation, University of Illinois, Champaign-Urbana, 2000). *Dissertation Abstracts International*, 63 (11-B), 5538.
- Vanderhaeghen, C.E. (1986). Self-concept and brain damage. *The Journal of General Psychology*, 113, 139-145.
- Watanabe-Hammond, S. (1988). Blueprints from the past: A character work perspective on siblings and personality formation. In M. D. Kahn & K.G. Lewis (Eds.) *Siblings in therapy: Life span and clinical issues* (pp. 356-378). New York: W.W. Norton and Company.

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