

Cognitive Processes and Identity Formation: The Mediating Role of Identity Processing Style

MICHAEL D. BERZONSKY

Department of Psychology
State University of New York Cortland

ABSTRACT

Identity formation is conceptualized in terms of a social-cognitive model that postulates stylistic differences in how people negotiate or manage to evade the challenge of constructing, maintaining, and/or reconstructing their sense of identity. Some people adopt an informed, reflective orientation to identity conflicts and questions; others take a more automatic, normative approach; whereas others procrastinate and delay identity decisions until situational demands and consequences dictate how they react. The role that general rational and automatic cognitive processes and identity processing styles play in identity formation is considered. Research that has evaluated the theoretical hypothesis according to which the linkage between rational and automatic reasoning processes and measures of identity formation is mediated by identity processing style is reviewed. The findings indicated that rational and automatic cognitive processes generally did account for significant variance on measures of identity formation including strength of commitment, types of self-attributes within which one's identity was grounded, and identity status. However, the findings further revealed that identity processing styles at least in part mediated most of the relationships between cognitive processes and identity formation. In all of the analyses, identity processing styles explained a greater amount of the unique variation in measures of identity formation than the cognitive variables.

Key words: identity processing style, identity achievement, commitment, rational processing, intuitive processing.

INTRODUCTION

Identity formation serves as the linchpin in Erik Erikson's (1968) lifespan theory of psychosocial personality development. A coherent and stable sense of identity provides a frame of reference for interpreting experience and self-relevant information and for making decisions and solving personal problems. Identity also provides a basis for maintaining a sense of self-unity over time and space. Despite the inevitable flux of random events and fleeting changes people experience in the course of their daily lives, an integrated identity structure enables them to construe their lives as being unified and meaningful (Berzonsky, in press). Although Erikson (1964) approached identity from a psychoanalytic perspective, he and others (e.g., Inhelder, Piaget, 1958; Marcia, 1980) have hypothesized that cognitive processes play an important role in identity formation. However, studies designed to demonstrate a relationship between formal operational reasoning and identity formation have produced mixed findings (see Berzonsky, Barclay, 1981; but compare, e. g., Boyes, Chandler, 1992). My research program has focused on stylistic differences in the social-cognitive strategies individuals use to construct, maintain and/or reconstruct a sense of identity (Berzonsky, 2004, 2008a). This social-cogni-

tive model highlights three identity processing **styles**: informational, diffuse-avoidant, and normative. These styles are reported preferences in the social-cognitive processes and strategies individuals use to engage or attempt to avoid the challenge of constructing and maintaining a coherent sense of identity (Berzonsky, in press).

The present article provides a review of research on the role that identity processing styles and cognitive processes play in identity formation. First, I provide a brief overview of the three processing styles and a review of research on linkages between identity processing styles and other identity and cognitive processes. The major purpose of the article is to review research that evaluated the theoretical hypothesis (Berzonsky, in press) that relationships between rational and automatic cognitive processes and measures of identity formation are at least partially mediated identity processing styles.

IDENTITY PROCESSING STYLES

Individuals with an **informational identity processing style** intentionally seek out, process, and evaluate self-relevant information. They are self-reflective, skeptical about self-views, open to new information, and willing to examine and revise aspects of their identity when faced with dissonant feedback (Berzonsky, 1990, 2004). This mentally effortful approach to identity formation should result in a stable, coherent, well-differentiated and integrated identity structure (see Berzonsky, 1989a).

Not all individuals deal with potentially self-diagnostic information in an open, effortful manner. People who possess a *normative identity processing style* more automatically internalize and conform to the expectations and values held for them by significant others and referent groups. Their primary concern to protect and conserve their existing identity structure; they have a low tolerance for ambiguity and a high need to maintain structure (Berzonsky, 2004; Soenens, Duriez, Goossens, 2005). This relatively automatic, or mindless (Langer,

1989) processing style is associated with a rigidly organized, change-resistant identity structures (Berzonsky, 1989a).

A **diffuse-avoidant identity processing style** is typified by chronic procrastination and defensive avoidance: Diffuse-avoiders are reluctant to confront and actively engage personal problems, identity conflicts. Of course, problems and decisional situations cannot always be avoided indefinitely. When diffuse-avoiders delay too long their behavior is dictated primarily by situational demands and consequences. Such situation-specific adjustments, however, tend to be relatively transient acts of verbal compliance or behavioral compliance rather than stable, long-term revisions in their identity structure. This identity style is associated with a fragmented, inconsistent, even empty identity structure continually needing to be validated and replenished by approval, praise, and acceptance from others, pleasurable experiences, consumer goods, and the like (see Berzonsky, Ferrari, 2009).

RESEARCH ON IDENTITY PROCESSING STYLES

Identity Style Inventory

Identity styles are operationally defined by a self-report Identity Style Inventory (ISI: Berzonsky, 1989b, 1992). The Inventory has been found to have adequate psychometric properties (see Berzonsky, 1992, 2004). Internal reliabilities of the scales generally range from 60. to 80., although translated versions, especially of the normative scale, have in some cases been lower (see Berzonsky, in press). The ISI or translated versions have been used in more than 15 different cultural contexts or countries including Poland (Senejko, 2007), India (Srivastava, 1993), the Czech Republic (Macek, Osecká, 1996), Slovakia (Sramova, Fichnova, 2008), Finland (Numri, Berzonsky, Tammi, Kinney, 1997), Greece (Vleioras, Bosma, 2005), Hungary (Sallay, 2002), Canada (Adams, Berzonsky, Keating, 2006), South Africa (Seabl, 2009), Italy (Crocetti, Rubini, Berzonsky, Meeus, 2009), Germany (Krettenauer,

2005), the Netherlands (Berzonsky, Branje, Meeus, 2007), Denmark, (Jorgensen, 2009), Spain (Munoz Garcia, 1998), Turkey (Celen, Kusdil, 2009), Australia (Caputi, Oades, 2001), Belgium (Duriez, Soenens, Beyers, 2004), China (Xu, 2009), and Iran (Hejazi, Shahraray, Farsinejad, Asgary, 2009). I want to emphasize that no single measure can completely assess the range of theoretical complexity reflected in these identity processing orientations. The Identity Style Inventory (ISI) provides one way of marking some of the theoretical components that constitute the social-cognitive orientations. Several lines of research attest to the convergent validity of the Inventory.

Identity Status

For more than 40 years the identity status model formulated by James Marcia (1966) has served as the standard for research on identity formation. Relationships between identity styles and identity status, therefore, provide a basis for establishing the convergent validity of the Identity Style Inventory. Relationships between identity style and status are perhaps the most consistently replicated findings in the identity status literature: at least nine different studies have been published. Consistent with expectations based on my social-cognitive model (Berzonsky, 1990, in press), the findings indicate that self-exploring achievement and moratorium identity statuses are positively associated with an informational processing style; foreclosure is linked to the normative identity style; and identity diffusion is correlated with the diffuse-avoidant style (Adams, Berzonsky, Keating, 2006; Berman, Schwartz, Kurtines, Berman, 2001; Berzonsky, 1989b, 1990; Berzonsky, Kuk, 2000; Berzonsky, Neimeyer, 1994; Krettenauer, 2005; Schwartz, Montgomery, 2002; Schwartz, Mullins, Waterman, Dunham, 2000; and Streitmatter, 1993).

Self-Definitional Bases

Identity processing styles should also be differentially associated with the types of self-elements youth encode and rely on to define their

sense of identity. Results from several research investigations are consistent with predictions based on my social-cognitive model (Berzonsky, 1990, in press). Individuals with high informational scores emphasize personal self-elements – e.g., my values, my goals, and my standards; those with high normative scores highlight collective self-attributes – e.g., my family, my religion, and my nationality; and diffuse-avoidance is associated with social self-elements such as popularity, my reputation and impressions made on others (Berzonsky, 1994, 2005; Berzonsky, Macek, Nurmi, 2003; Dollinger, Dollinger, Centeno, 2005).

Cognitive Processes and Strategies

A number of studies have investigated the cognitive strategies used by individuals with different identity styles. While youth with both informational and normative styles have been found to be conscientious, purposive, and reasonably effective in their lives, they differ in openness to new experiences and the extent to which they process and evaluate complex information. An informational processing style is positively associated with openness to ideas and values (Berzonsky, 1990; Berzonsky, Sullivan, 1992; Dollinger, 1995; Duriez, Soenens, Beyers, 2004; Duriez, Soenens, 2006) and rational/analytical thinking (Berzonsky, 1990, Berzonsky, Ferrari, 1996; Berzonsky, Sullivan, 1992). An informational identity style is also positively associated with automatic reasoning as indexed by the Epstein, Pacini, Denes-Raj, Heier (1996) Faith in Intuition measure of automatic processing (Berzonsky, 2004, 2008a), which supports the supposition that both automatic and deliberative reasoning contribute to identity formation (Berzonsky, 2004; Epstein *et al.*, 1996). A normative identity style is associated with automatic processing as measured by both intuitive reasoning (Berzonsky, 2008a, 2008b) and need for cognitive closure (Webster, Kruglanski, 1996), which assesses cognitive rigidity with a low tolerance for uncertainty (Berzonsky, 2007; Crocetti *et al.*, 2009; Soenens *et al.*, 2005). Diffuse-avoidance has been found to be associated with maladaptive cognitive and

attributional strategies such as task avoidance, self-handicapping, external control expectancies, minimal self-efficacy and task-irrelevant behaviors (Berzonsky, 1990; Berzonsky, Ferrari, 2009; Berzonsky, Nurmi, Tammi, Kinny, 1999; Nurmi *et al.*, 1997). Diffuse-avoidance is negatively related to rational processing (Berzonsky, 1990, 2008a), positively associated to intuitive thinking (Berzonsky, 2008a), and generally not correlated with need for cognitive closure (Berzonsky, 2007; Crocetti *et al.*, 2009; Soenens *et al.*, 2005).

A MEDIATIONAL MODEL OF IDENTITY FORMATION

These findings provide considerable evidence for the convergent validity of the style scales as measures of both identity processes and cognitive processing. According to my social-cognitive model, identity processing styles reflect more than general cognitive strategies and processes; they comprise cognitive processes that are relevant to identity conflicts and issues. Specifically, the model postulates that while both general cognitive processes and identity processing styles directly account for variation in identity processes, associations between general cognitive processes and various markers of identity formation will at least in part be mediated by identity processing styles (see Figure 1). The mediational model is based on Epstein's (1990) view that two parallel information-processing systems are involved in processing self-relevant information (see also Klaczynski, 2004). One

is a reason-based, rational system that processes symbolic information in an intentional, analytical, and effortful fashion (Epstein, 1990). The other is a more experience-based intuitive system that processes contextualized or concrete information in a relatively automatic and mindless fashion. Although self-construction and self-regulation are postulated to be an interactive function of both systems, people can toggle between the two and there are individual differences in the tendency to rely on or prefer one of the two cognitive systems (see Berzonsky, 2004; Epstein, *et al.*, 1996).

I will now review research that has evaluated this mediational model (Berzonsky, 2007, 2008a, 2008b). The findings are organized in terms of three different types of measures of identity formation: identity commitment, identity status, and identity elements or attributes. Representative path models are presented for each identity criterion measure. The analytical strategies used in each investigation were hierarchical regression analyses. Each identity formation criterion was regressed hierarchically in three steps. First, age and sex were entered as control variables (these findings will not be presented or discussed). Second, the cognitive measures were entered to ascertain their direct effect before controlling for identity style. Finally, the three identity style variables were entered. Evidence for mediation was indicated when the beta coefficients for the cognitive variables were substantially reduced after the style variables were controlled. Indirect paths in the models were computed by regressing the

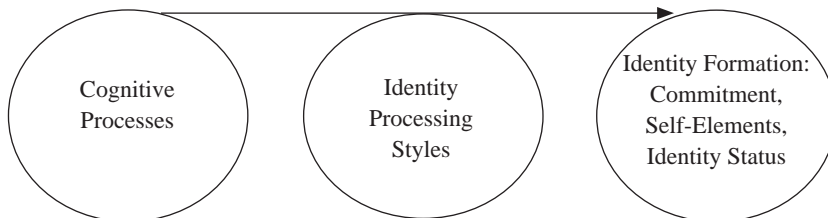


Figure 1. Model of hypothesized relationship between cognitive processes, identity style, and identity formation (adapted from Berzonsky, 2008a)

style variables on the cognitive variables. Sobel tests were used to evaluate whether the indirect paths were significant: only significant direct and indirect paths are included in the models. To determine the relative unique contributions of the cognitive and style variables, ancillary analyses were conducted in which the block of style variables was entered before the cognitive variables.

Identity Commitment

Commitment is a defining dimension in Marcia's (1966) identity status paradigm. Stable identity commitments serve an important role in personal functioning and well-being (Meeus, Iedema, Helsen, Vollebergh, 1999). To evaluate the mediational model with commitment strength as the dependent variable, Berzonsky (2007, Study 2) administered a battery of measures to 174 late adolescent participants that included identity style (Berzonsky, 1992), identity commitment (Berzonsky, 2003), rational reasoning (Cacioppo, Petty, 1982; Cacioppo, Petty, Kao, 1984), and

automatic reasoning (Faith in Intuition: Epstein, *et al.*, 1996). Commitment was regressed hierarchically in three steps. After the effects of age and sex were controlled, the cognitive variables on Step 2 accounted for an additional 9% of the variation in identity commitment: both rational ($\beta = .20, p < .01$) and intuitive ($\beta = .22, p < .01$) reasoning made unique positive contributions. The style variables added on Step 3 accounted for an additional 37% of the variance, with all three styles uniquely explaining significant variation in commitment scores (Figure 2). Neither cognitive variable remained significant on Step 3 indicating that their contributions were completely mediated by the style variables. As shown in Figure 2, the relationship between rational processing and commitment was completely mediated by the informational (positively) and diffuse-avoidant (negatively) styles. The contribution of intuitive reasoning was mediated by the informational and normative styles. The entire model explained 49% of the variation in strength of identity commitment.

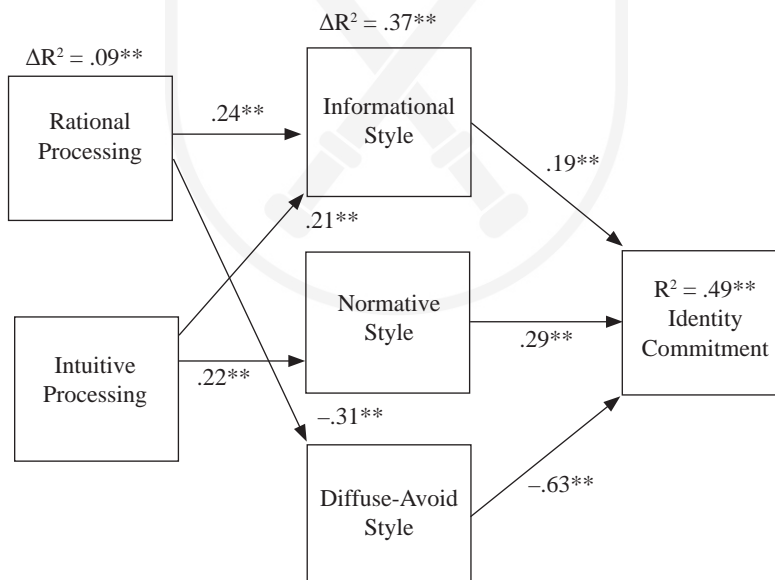


Figure 2. Significant paths between cognitive processes, identity styles, and strength of identity commitment. Effects of sex and age are not included (adapted from Berzonsky, 2007)

** $p < .01$

Berzonsky (2008a) found that the same cognitive variables accounted for 14% of the variation in strength of commitment, with only rational processing ($\beta = .37, p < .01$) making a unique contribution. Adding the style variables explained an additional 20% of the variance, with all three making unique contributions: informational ($\beta = .14, p < .05$); normative ($\beta = .38, p < .01$); and diffuse-avoidant ($\beta = -.22, p < .01$). Consistent with the mediational model, the standardized beta coefficient for rational processing was reduced by approximately 50%. A Sobel test indicated that the association between rational processing and strength of identity commitment was partially mediated by the informational style. Total adjusted R^2 for the model was .38, $p < .01$.

The results indicate that commitments may be formed in a mentally effortful, informed fashion or a more automatic, normative one. In both investigations linkages between general cognitive processes and strength of identity commitment were mediated by identity processing styles. Also, the identity styles accounted for a greater portion of the commitment variance than the cognitive processes.

Identity Elements

As noted above, identity processing styles are differentially associated with the type of self-relevant information or self-elements individuals utilize to form their sense of identity (Cheek, 1989). Berzonsky (2008b) conducted two studies to evaluate whether identity processing styles mediated relationships between cognitive processes and the types of self-elements that individuals relied on to define their sense of identity: (a) personal identity attributes such as "personal values" and "self-knowledge;" (b) social identity components including "reputation" and "impressions made on others;" and (c) collective identity elements such as "religion" and "family." In the first study, approximately 300 participants were given measures of identity style, rational processing (Cacioppo, *et al.*, 1984), intuitive processing (Epstein *et al.*, 1996) and the Aspects of Identity Questionnaire (AIQ-III) developed by Cheek, Underwood, & Cutler (1985).

The analytic strategy used to test the mediational models again involved hierarchical regression with age and sex entered as control variables on Step 1. Study 2 ($N = 170$) was a replication with the exception that automatic processing was operationalized with the Webster, Kruglanski (1996) Need for Cognitive Closure (NFCC) scale, which assesses differences in the extent to which people are motivated to avoid ambiguity and uncertainty by responding in a relatively automatic or mindless fashion without exerting much cognitive effort or taking time to consider alternatives or process new information. People with a high need for cognitive closure are cognitively impatient, inflexible, reluctant to suspend judgment, and closed minded (Kruglanski, 1990). Because the decisiveness subscale has been found to measure a different latent variable than the other NFCC subscales (Neuberg, Judice, West, 1997), it was not included in computing the NFCC score.

Personal self-attributes. Berzonsky (2008b, Study 1) found that the cognitive variables explained 13% of the variance in utilization of personal identity elements (e.g., my values, my self-knowledge, etc.) with both rational ($\beta = .23, p < .01$) and intuitive ($\beta = .27, p < .01$) processing making unique contributions. Entering the style variables accounted for an additional 9% of the variance with all three making significant unique contributions (Figure 3). Support for the mediational model was found: the beta coefficient for rational processes was reduced about 60% and a Sobel test indicated that the relationship between rational processing and reliance on personal identity attributes was partially mediated by an informational style. As indicated in Figure 3, the contribution of intuitive processing to personal identity was not mediated by any of the style variables. An ancillary analysis in which the style variables were entered before the cognitive variables indicated that the unique contribution of style variables (9%) was larger than that of the cognitive ones (6%).

In Study 2, automatic processing was measured by need for closure. The cognitive variables explained 8% of the differences in the uti-

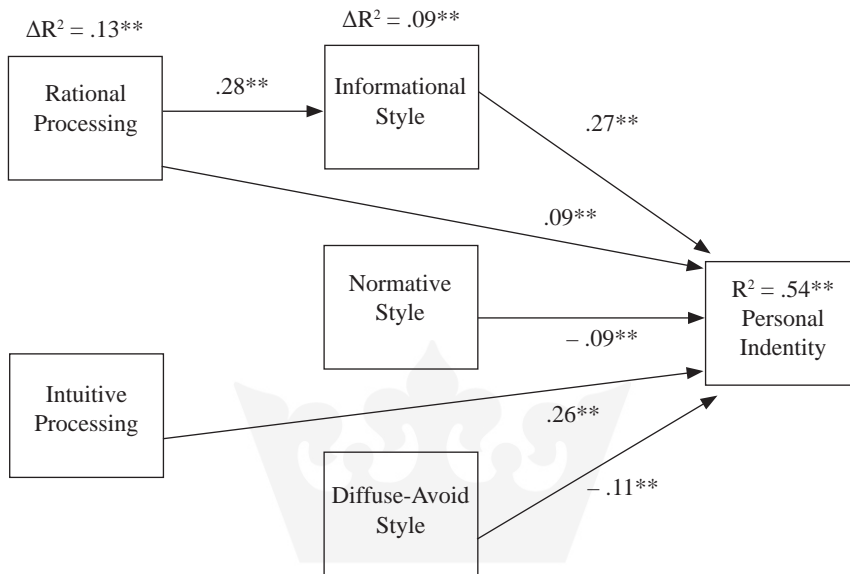


Figure 3. Significant paths between cognitive processes, identity styles, and reliance on personal identity elements. Effects of sex and age are not included (adapted from Berzonsky, 2008b)

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

lization of personal self-elements; only rational processing ($\beta = .28$, $p < .01$) had a unique effect. The style variables explained an additional 11% of the variance. Only an informational style had a unique effect ($\beta = .39$, $p < .01$) and it completely mediated the effect of rational processing. A supplemental analysis where the style variables were entered before the cognitive variables indicated that the unique contribution of style (11%) was larger than that of the cognitive ones (2%). Total adjusted R^2 for the model was $.29$, $p < .01$.

The findings indicate that although rational cognitive processing was associated with the tendency to define oneself in terms of personal attributes and components, that relationship was at least partially mediated by an informational processing approach to identity issues and conflicts. Further, the results suggest that while experience-based intuitive reasoning may directly contribute to differences in the utilization of personal identity information, the tendency to reason and make decisions in a closed, mindless, and preemptive fashion is not.

Social self-attributes. Rational ($\beta = -.17$, $p < .05$) but not intuitive processing was found to uniquely predict a reliance on social identity-elements such as “what others think of me,” “popularity,” and “impressions made on others” ($\Delta R^2 = .03$, $p < .05$) (Berzonsky, 2008b, Study 1). Adding the style variables accounted for an additional 4% of the variance with the normative and diffuse-avoidant styles making unique positive contributions (Figure 4). After controlling for style, the direct negative effect of rational processing was no longer significant providing evidence for complete mediation. Sobel tests revealed that the negative contribution of rational processing to the use of social identity attributes was mediated by both the diffuse-avoidant and normative styles. An ancillary analysis in which the style variables were entered before the cognitive ones revealed that the unique contribution of the style variables ($\Delta R^2 = .04$, $p < .01$) was greater than that of the cognitive variables ($\Delta R^2 = .01ns$).

Berzonsky (2008b, Study 2) found that automatic processing assessed by Need for

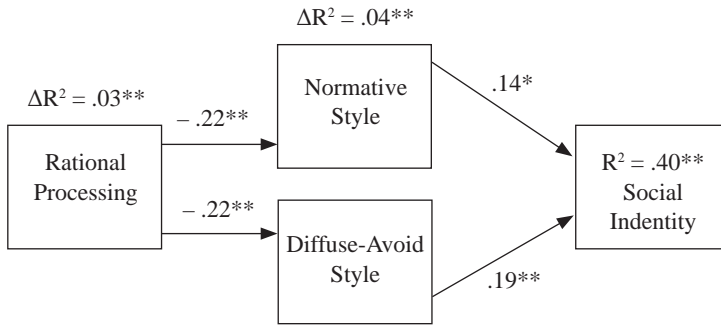


Figure 4. Significant paths between cognitive processes, identity styles, and reliance on social identity elements. Effects of sex and age are not included (adapted from Berzonsky, 2008b)

** $p < .01$

Cognitive Closure ($\beta = .16, p < .05$) uniquely predicted use of social identity attributes but rational processing did not ($\Delta R^2 = .03, p < .05$). Perhaps the negative contribution of rational processing in Study 1 reflected a tendency to deal with issues in a closed, preemptive fashion. The style variables explained an additional 4% of the variance with both the normative ($\beta = .18, p < .05$) and diffuse-avoidant ($\beta = .18, p < .05$) styles making unique positive contributions. A Sobel test indicated that the relationship between automatic processing (NFCC) and use of social identity elements was completely mediated by the normative style. A supplemental analysis indicated that the unique contribution the style variables ($\Delta R^2 = .04, p < .05$) made to differences in a reliance on

social self-elements was significant but that of the cognitive variables was not ($\Delta R^2 = .02$ ns). Total adjusted R^2 for the model was .13, $p < .01$.

Collective self-attributes. Berzonsky (2008b, Study 2) found that cognitive variables accounted for 7% of the differences in the tendency to define oneself in terms of collective self-attributes such as “religion,” “nationality,” and “family.” Only automatic processing as measured by need for closure, however, made a unique contribution ($\beta = .29, p < .01$). The style variables explained an additional 8% of the variance with only the normative style making a unique direct contribution (Figure 5). When the style variables were controlled, the standardized beta for automatic processing was reduced about 45% and a Sobel test provided

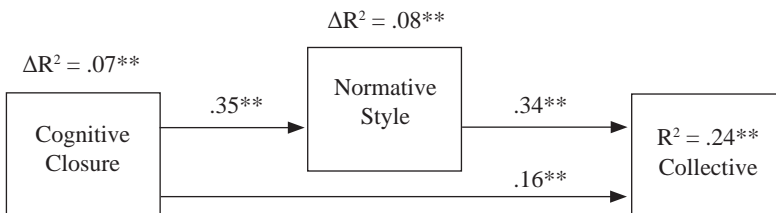


Figure 5. Significant paths between cognitive processes, identity styles, and reliance on collective identity elements. Effects of sex and age are not included (adapted from Berzonsky, 2008b)

** $p < .01$

evidence for partial mediation. A supplemental analysis with the order of entry reversed indicated that the unique contribution of the style variables was greater than ($\Delta R^2 = .08, p < .01$) than that of the cognitive variables ($\Delta R^2 = .02ns$).

In Berzonsky (2008b, Study 1) when automatic processing was measured with intuitive reasoning, the cognitive variables did not account for significant variation in collective identity scores ($\Delta R^2 = .00ns$). Entering the style variables accounted for 8% of the variance, with only the normative style being a unique predictor ($\beta = .33, p < .01$). Total adjusted R^2 was .08, $p < .01$. It appears as if automatic processing that is relatively mindless plays a significant role in the tendency to define oneself collectively in terms of the dictates of social institutions and standards. A normative processing style, in turn, was found to at least partially mediate the path from effortless need for closure to a collective sense of self.

Identity Status Variables

For more than 45 years, most identity research has been framed in terms of the identity status model developed by James Marcia (1966). Drawing on Erikson's (1964) theoretical writings, Marcia operationally defined different four identity types or statuses in terms of the absence or presence of commitment and self-exploration (originally referred to as a personal crisis or turning point). Individuals categorized as identity achieved (commitment present following a period of self-exploration) have been found to perform better along a multitude of cognitive, social, and personal than their counterparts in the other statuses (see Berzonsky, Adams, 1999; Marcia, 1993). Individuals classified as identity foreclosure (commitment present in the absence of self-exploration), and especially identity diffusion (commitment and self-exploration absence). People in the moratorium status category (ongoing self-exploration; firm commitments absent) tend to be the most variable; they score second to achievers on some dimensions but similar to uncommitted diffusions (see Berzonsky, Adams, 1999; Kroger, Marcia, in press; Marcia, 1993).

The role style plays in mediating relationships between cognitive processing and identity status has been investigated in two studies (Berzonsky, 2007, 2008a). In both investigations, participants were administered measures of identity style, rational processing (Cacioppo *et al.*, 1984), intuitive processing (Epstein *et al.*, 1996), and identity status (Adams, 1999).

Identity achievement status. Berzonsky (2008a) found that both automatic intuitive ($\beta = .17, p < .05$) and effortful rational ($\beta = .20, p < .01$) processing contributed to variation in identity achievement scores ($\Delta R^2 = .06, p < .01$). Adding the style variables accounted for an additional 6% of the variance with an informational and normative style making unique contributions (Figure 6). Evidence for complete mediation was obtained when the style variables were controlled; neither cognitive variable remained significant. As shown in Figure 6, relationships between both cognitive variables and identity achievement were mediated by an informational style. Interestingly, the relationship between experientially-based intuitive processing and identity achievement was not mediated by a normative style. A supplemental analysis in which the order of the cognitive and style variables was reversed revealed that the independent contribution of the style variables to identity achievement was greater than ($\Delta R^2 = .11, p < .01$) than that of the cognitive variables ($\Delta R^2 = .01ns$).

Berzonsky (2007) found that only rational processing ($\beta = .26, p < .01$) uniquely predicted identity achievement ($\Delta R^2 = .08, p < .01$). Adding the style variables explained an additional 14% of the variance with all three styles making unique contributions: informational ($\beta = .18, p < .05$); normative ($\beta = .24, p < .01$); and diffuse-avoidant ($\beta = -.27, p < .01$). Including the style variables reduced the direct effect of rational processing approximately 60% providing evidence for partial mediation. Sobel tests revealed that the relationship between rational processing and identity achievement was partially mediated by both the informational (positively) and diffuse-avoidant (negatively) styles. Total adjusted R^2 was .21, $p < .01$.

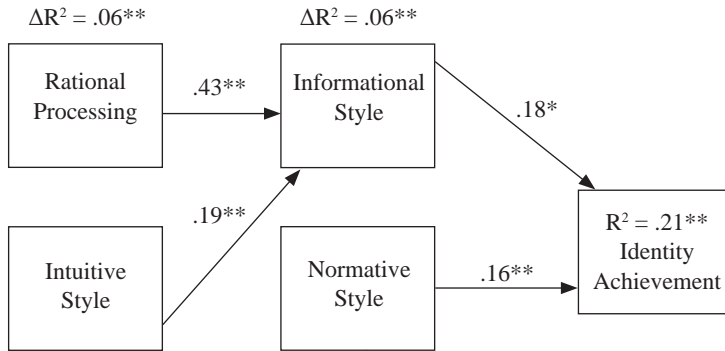


Figure 6. Significant paths between cognitive processes, identity styles, and identity achievement. Effects of sex and age are not included (adapted from Berzonsky, 2008a)

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

Consistent with Marcia's (1966) views on deliberate self-exploration, rational processing was found to play a role in identity achievement. The linkage between rational thinking and achieving an individualized sense of identity, however, was found to be partially mediated by an informational processing style. The hypothesized role that experientially-based intuitive processing may play in identity achievement (Berzonsky, 2004; Epstein *et al.* 1996) received at least partial support. The contribution of such automatic reasoning, however, appears to be mediated via an informational orientation to identity issues and conflicts. Although a direct linkage from the normative style to identity achievement was found in both studies, the normative style did not mediate any of the cognitive effects that were found. Thus the automatic reasoning that is associated with normative processing (Berzonsky, 2004, 2008a) does not appear to contribute to the achievement of a personal sense of identity. This seemingly anomalous association between a normative style and identity achievement (see also Berzonsky, 1990; Berzonsky, Kuk, 2000; Berzonsky, Neimeyer, 1994; Krettenauer, 2005) may reflect the high level of commitment associated with both variables. This is an issue that warrants further investigation.

Identity foreclosure status. Unique relationships between identity foreclosure (commitment without self-exploration) and ration-

al ($\beta = -.31, p < .01$) and intuitive ($\beta = .20, p < .01$) processing ($\Delta R^2 = .12, p < .01$) were found by Berzonsky (2007). Adding the style variables accounted for an additional 20% of the variance in foreclosure scores with only the normative style making a unique contribution (Figure 7). When the style variables were controlled, the direct relationship with intuitive processing was no longer significant indicating that the relationship was completed mediated by the normative style. Although the standardized beta for rational processing was reduced approximately 55% when the style variables were controlled, no evidence for partial mediation by style was found (Figure 7). Total adjusted R^2 was .41, $p < .01$.

A foreclosed approach to identity formation appears to be relatively automatic or mindless (Langer, 1989) in nature. It involves the forming of commitment without actively deliberating or intentionally considering options and alternatives.

Identity moratorium and diffusion statuses. Neither rational nor intuitive cognitive processes were found to explain significant variation in moratorium ($\Delta R^2 = .00, ns$) or diffusion ($\Delta R^2 = .01, ns$) status scores (Berzonsky, 2007). In both models the style variables made significant contributions. Moratorium scores were uniquely predicted by the informational ($\beta = .20, p < .01$) and diffuse-avoidant ($\beta = .20, p < .01$) styles ($\Delta R^2 = .06, p < .01$).

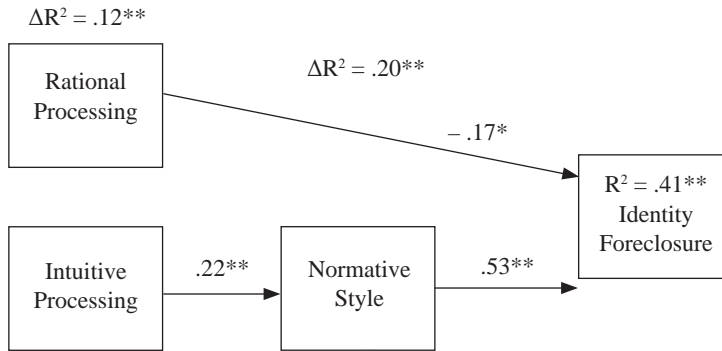


Figure 7. Significant paths between cognitive processes, identity styles, and identity foreclosure. Effects of sex and age are not included (adapted from Berzonsky, 2008a)

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

Likewise, the diffuse-avoidant ($\beta = .20, p < .01$) and informational ($\beta = -.17, p < .01$) styles both independently accounted for differences in diffusion identity scores ($\Delta R^2 = .07, p < .01$).

These findings at least suggest that identity diffusion may to some extent reflect situational rather than dispositional factors. For instance, individuals with a diffuse-avoidant processing style are hypothesized to operate in a situation-specific fashion: their behavior may depend more on where they are and who they are with than what they think and plan (Berzonsky, in press). The failure to find a significant positive relationship between rational processing and identity moratorium scores is puzzling. By definition, individuals categorized as moratoriums are in the process of active self-exploration (Marcia, 1980, 1993). Moreover, an informational processing style was directly positively associated with moratorium scores. Perhaps, the Adams (1999) measure of identity moratorium, which is positively correlated with the diffusion scale, played a role. This is an issue that needs to be addressed in future research.

CONCLUSIONS AND LIMITATIONS

The literature that was reviewed indicates that identity styles reflect strategic differences in the processing of identity relevant information (Berzonsky, 1990, 2004). A self-directed, in-

formed approach to identity formation was associated with both rational and automatic intuitive processing. However, an informational style was not linked with automatic processing as measured by need for cognitive closure. Thus, individuals with high informational scores indicate a willingness to tolerate ambiguity and monitor their reasoning processes, which may enable them to override or release from automatic processing when feedback indicates that their reasoning is biased and distorted (see Berzonsky, 1990, 2004; Klaczynski, 2004). A normative approach to identity issues was more exclusively automatic in nature: it was consistently associated with a high need for cognitive closure as well as intuitive reasoning. Individuals with high normative scores tend to be cognitively inflexible, closed-minded, and strongly motivated to process self-relevant information in a structure-driven fashion, which can minimize ambiguity by confirming and preserving existing self-views (Berzonsky, 1990).

It is possible that the automatic processing associated with the normative and informational style occurs for different reasons. The normative style may primarily reflect a “mindless” process (Langer, 1989) of prematurely internalizing beliefs and commitments without deliberate conscious effort (see Berzonsky, 1988). The automaticity associated with an informational style, in contrast, may be more experi-

ence based. Although effortful rational processing may be instrumental in the initial formation of views and commitments, as those views are repeatedly accessed and applied they may become increasingly automatic and activated with minimal mental effort and resources (see Bargh, 1997).

A diffuse-avoidant style was negatively associated with effortful rational processing, which supports the view that diffuse-avoidance is a non-reflective, situation-specific approach to identity issues (Berzonsky, 1990). It appears that individuals with high diffuse-avoidant style scores strive to avoid self-relevant information. Given their limited commitments and self-standards (Berzonsky, 2003), they may find themselves dealing with context-specific demands and consequences in a reactive, impulsive, or indifferent fashion. Research indicates that diffuse-avoiders make excuses and deny responsibility for negative outcomes and engage in self-handicapping behaviors that tend to sabotage their performance on potentially self-diagnostic tasks (Berzonsky, Ferrari, 1996, 2009).

The type of information or self-attributes that individuals highlight in their sense of identity was differentially associated with identity style. Specifically, an informational style was linked to personal self-element and a normative style was associated with collective self-attribute. Given that individuals with high normative scores are motivated to form views and obtain answers with a minimal expenditure of mental resources, perhaps collectively based commitments enable them to avoid the anxiety, uncertainty, and personal responsibility that is associated with personal decision making (see Berzonsky, 2003; Marcia, 1993). This approach, however, may be a two-edged sword: automatic, belief-driven reasoning is likely to increase the extent to which decisions and judgments are biased and erroneous (Berzonsky, 1990; Klaczynski, 2004). A diffuse-avoidant style was associated with social self-attributes such as reputation and impressions of

others, which again underscores the situational nature of the diffuse-avoidant approach to identity formation: opportunistically attempting to adopt and slough off roles, views, and public presentations as one moves from situation to situation.

Evidence for the mediational role of identity processing style was obtained in all of the analyses where initially the cognitive variables were directly associated with the measure of identity formation, which supports the supposition that identity styles focus on the processing of identity-relevant information in particular rather than information in general (Berzonsky, 1990, in press). Even though the cognitive variables were entered into the regression models first, when the style variables were entered they still generally accounted for a greater portion of the variation on the identity measures. Moreover, in all of the analyses that were reviewed (Berzonsky, 2007, 2008a, 2008b), the style variables explained a greater amount of the unique variation in the identity measures than did the cognitive ones.

In conclusion, I want to emphasize that the causal ordering of the cognitive, style, and identity variables was based on conceptual not empirical considerations. Because the data were collected at the same point in time a number of alternative explanations are possible. For example, it is possible that the construction of a personal sense of identity contributes to the use of an informational style, which leads to more rational processing. Or, it is possible that the pattern of relationships between the style and identity variables was due to some unmeasured third variable such as common method variance or motivational orientation. Collecting longitudinal data and examining cross-lagged paths between the variables would be one way to begin to evaluate some competing explanations. Also, in future research it would be helpful to directly measure rational and automatic processing strategies rather than rely exclusively on self-reported strategies.

REFERENCES

- Adams G.R. (1999), *The Objective Measure of Ego Identity Status: A Manual on Theory and Test Construction*. Ontario, Canada: University of Guelph.
- Adams G.R., Berzonsky M.D., Keating L. (2006), Psychosocial Resources in First-year University Students: The Role of Identity Processes and Social Relationships. *Journal of Youth and Adolescence*, 35, 81–91.
- Bargh J.A. (1997), The Automaticity of Everyday Life [in:] R.S. Wyer Jr., T.K. Skull (eds.), *Advances in Social Cognition*, vol. 10, 1–61. Mahwah, NJ: Erlbaum.
- Berman A.M., Schwartz S.J., Kurtines W.M., Berman S.L. (2001), The Process of Exploration in Identity Formation: The Role of Style and Competence. *Journal of Adolescence*, 24, 513–528.
- Berzonsky M.D. (1988), Self-theorists, Identity Status, and Social Cognition [in:] D.K. Lapsley, F.C. Power (eds.), *Self, Ego, and Identity: Integrative Approaches*, 243–262. New York: Springer-Verlag.
- Berzonsky M.D. (1989a), The Self as a Theorist: Individual Differences in Identity Formation. *International Journal of Personal Construct Psychology*, 2, 363–376.
- Berzonsky M.D. (1989b), Identity Style: Conceptualization and Measurement. *Journal of Adolescent Research*, 4, 267–281.
- Berzonsky M.D. (1990), Self-construction over the Life-span: A Process Perspective on Identity Formation [in:] G.J. Neimeyer, R.A. Neimeyer (eds.), *Advances in Personal Construct Psychology*, vol. 1, 155–186. Greenwich, CT: JAI Press.
- Berzonsky M.D. (1992), *Identity Style Inventory (IS13): Revised Version*. Unpublished measure, Department of Psychology, State University of New York, Cortland, NY 13045.
- Berzonsky M.D. (1994), Self-identity: The Relationship between Process and Content. *Journal of Research in Personality*, 28, 453–460.
- Berzonsky M.D. (2003), Identity Style and Well-being: Does Commitment Matter? *Identity: An International Journal of Theory and Research*, 3, 131–142.
- Berzonsky M.D. (2004), Identity Processing Style, Self-construction, and Personal Epistemic Assumptions: A Social-cognitive Perspective. *European Journal of Developmental Psychology*, 1, 303–315.
- Berzonsky M.D. (2005), Ego Identity: A Personal Standpoint in a Postmodern World, Identity. *An International Journal of Theory and Research*, 5(2), 125–136.
- Berzonsky M.D. (2007), *Identity Style, Cognitive Processing, and Identity Formation*. Paper presented at the 14th annual meetings of the Society for Research on Identity Formation, Washington, D.C.
- Berzonsky M.D. (2008a), Identity Formation: The Role of Identity Processing Style and Cognitive Processes. *Personality and Individual Differences*, 44, 643–653.
- Berzonsky M.D. (2008b), *The Role of Identity Processing Styles and Cognitive Processes in Identity Formation*. Paper presented at the biennial meetings of the Society for Research on Adolescence, Chicago, IL.
- Berzonsky M.D. (in press), A Social-Cognitive Perspective on Identity Construction [in:] S.J. Schwartz, K. Luyckx, V. Vignoles (eds.), *Handbook of Identity Theory and Research*. London: Springer.
- Berzonsky M.D., Adams G.R. (1999), The Identity Status Paradigm: Still Useful after Thirtyfive Years. *Developmental Review*, 19, 557–590.
- Berzonsky M.D., Barclay C.R. (1981), Formal Reasoning and Identity Formation: A Reconceptualization. *Contributions to Human Development*, 5, 61–87. Basil: Karger.
- Berzonsky M.D., Branje S.J.T., Meeus W. (2007), Identity Processing Style, Psychosocial Resources, and Adolescents Perceptions of Parent-Adolescent Relations. *Journal of Early Adolescence*, 27, 324–335.
- Berzonsky M.D., Ferrari J. R. (1996), Identity Orientation and Decisional Strategies. *Personality and Individual Differences*, 20, 597–606.
- Berzonsky M.D., Ferrari J.R. (2009), A Diffuse-Avoidant Identity Processing Style: Strategic Avoidance or Self Confusion? *Identity: An International Journal of Theory and Research*, 9, 145–158.
- Berzonsky M.D., Kuk L. S. (2000), Identity Status, Identity Processing Style, and the Transition to University. *Journal of Adolescent Research*, 15, 81–98.
- Berzonsky M.D., Macek P., Nurmi J.-E. (2003), Interrelations among Identity Process, Content, and Structure: A Cross-Cultural Investigation. *Journal of Adolescent Research*, 18, 112–130.

- Berzonsky M.D., Neimeyer G.J. (1994), Ego Identity Status and Identity Processing Orientation: The Moderating Role of Commitment. *Journal of Research in Personality*, 28, 425–435.
- Berzonsky M.D., Nurmi J.-E., Kinney A., Tammi K. (1999), Identity Processing Orientation and Cognitive and Behavioral Strategies: Similarities and Differences across Different Contexts. *European Journal of Personality*, 13, 105–120.
- Berzonsky M.D., Sullivan C. (1992), Social-Cognitive Aspects of Identity Style: Need For Cognition, Experiential Openness, and Introspection. *Journal of Adolescent Research*, 7, 140–155.
- Boyes M.C., Chandler M. (1992), Cognitive Development, Epistemic Doubt, and Identity Formation during Adolescence. *Journal of Youth and Adolescence*, 21, 277–304.
- Cacioppo J.T., Petty R.E. (1982), The Need for Cognition. *Journal of Personality and Social Psychology*, 42, 116–131.
- Cacioppo J.T., Petty R.E., Kao C. (1984), The Efficient Assessment of Need for Cognition. *Journal of Personality Assessment*, 48, 306–307.
- Caputi P., Oades L. (2001), Epistemic Assumptions: Understanding Self and the World (A Note on the Relationship Between Identity Style, World View and Constructivist Assumptions Using an Australian Sample). *Journal of Constructivist Psychology*, 14, 127–134.
- Celen H.N., Kusdil M.E. (2009), Parental Control Mechanisms and Their Reflection on Identity Styles of Turkish Adolescents. *Paideia*, 19, 7–16.
- Cheek J.M. (1989), Identity Orientations and Self-Interpretation [in:] D.M. Buss, N. Cantor (eds.), *Personality Psychology: Recent Trends and Emerging Directions*, 275–285. New York: Springer-Verlag.
- Cheek J.M., Underwood M.K., Cutler B. L. (1985), *The Aspects of Identity Questionnaire (III)*. Unpublished Manuscript, Wellesley College.
- Crocetti E., Rubini M., Berzonsky M.D., Meeus W. (2009), The Identity Style Inventory – Validation in Italian Adolescents and College Students. *Journal of Adolescence*, 32, 425–433.
- Dollinger S.M.C. (1995), Identity Styles and the Five-Factor Model of Personality. *Journal of Research in Personality*, 29, 475–479.
- Dollinger S.J., Dollinger S.M.C., Centeno L. (2005), *Identity and Creativity. Identity: An International Journal of Theory and Research*, 5, 315–330.
- Duriez B., Soenens B. (2006), Personality, Identity Styles, and Authoritarianism. An Integrative Study among Late Adolescents. *European Journal of Personality*, 20, 397–417.
- Duriez B., Soenens B., Beyers W. (2004), Religiosity, Personality, and Identity Styles: An Integrative Study among Late Adolescents in Flanders (Belgium). *Journal of Personality*, 72, 877–910.
- Epstein S. (1990), Cognitive-Experiential Theory [in:] L. Previn (ed.), *Handbook of Personality Theory and Research*, 165–192. New York: Guilford Press.
- Epstein S., Pacini R., Denes-Raj V., Heier H. (1996), Individual Differences in Intuitive-Experiential and Analytical-Rational Thinking. *Journal of Personality and Social Psychology*, 71, 390–405.
- Erikson E. (1964), *Insight and Responsibility*. New York: Norton.
- Erikson E. (1968), *Identity: Youth and Crisis*. New York: Norton.
- Hejazi E., Shahraray M., Farsinejad M., Asgary A. (2009), Identity Styles and Academic Achievement: Mediating Role of Academic Self-Efficacy. *Social Psychology of Education*, 12, 123–135.
- Inhelder B., Piaget J. (1958), *The Growth of Logical Thinking from Childhood to Adolescence*. New York: Basic Books.
- Jorgensen C.R. (2009), Identity Style in Patients with Borderline Personality Disorder and Normal Controls. *Journal of Personality Disorders*, 23, 101–112.
- Klaczynski P.A. (2004), A Dual-Process Model of Adolescent Development: Implications for Decision Making, Reasoning, and Identity [in:] R.V. Kail (ed.), *Advances in Child Development and Behavior*, vol. 32, 73–123. New York: Elsevier.
- Krettenauer T. (2005), The Role of Epistemic Cognition in Adolescent Identity Formation: Further Evidence. *Journal of Youth and Adolescence*, 34, 185–198.
- Kroger J., Marcia J.E. (in press), The Identity Statuses: Origins, Meanings, and Interpretations [in:] S.J. Schwartz K. Luyckx V. Vignoles (eds.), *Handbook of Identity Theory and Research*. London: Springer.

- Kruglanski A.W. (1990), Lay Epistemic Theory in Social-Cognitive Psychology. *Psychological Inquiry*, 1, 181–197.
- Langer E. (1989), Minding Matters: The Consequences of Mindlessness and Mindfulness [in:] L. Berkowitz (ed.), *Advances in Experimental Social Psychology*, 22, 137–173. New York: Academic Press.
- Macek P., Osecka L. (1996), The Importance of Adolescents' Selves: Description, Typology, and Context. *Personality and Individual Differences*, 21, 1021–1027.
- Marcia J.E. (1966), Development and Validation of Ego Identity Status. *Journal of Personality and Social Psychology*, 3, 551–558.
- Marcia J.E. (1980), Identity in Adolescence [in:] J. Adelson (ed.), *Handbook of Adolescent Psychology*, 159–187). New York: Wiley.
- Marcia J.E. (1993), The Status of The Statuses: Research Review [in:] J.E. Marcia, A.S. Waterman, D.R. Matteson, S.L. Archer, J.L. Orlofsky (eds.), *Ego Identity: A Handbook for Psychosocial Research*, 22–41. New York: Springer Verlag.
- Meeus W., Iedema M., Helsen M., Vollebergh W. (1999), Patterns of Adolescent Identity Development: Review of Literature and Longitudinal Analysis. *Developmental Review*, 19, 419–461.
- Munoz Garcia M.I. (1998), *La identidad adolescente: estudio empirico dirigido a la elaboracion de una primera adaptacion del inventario de estilo de identidad de Michael D. Berzonsky*. Doctor thesis submitted to Universidad Pontificia De Salamaca.
- Neuberg S.L., Judice T. N., West S.G. (1997), What the Need for Closure Scale Measures and What it Does Not Measure: Toward Differentiating among Related Epistemic Motives. *Journal of Personality and Social Psychology*, 72, 1396–1412.
- Nurmi J.-E., Berzonsky M.D., Tammi K., Kinney A. (1997), Identity Processing Orientation, Cognitive and Behavioral Strategies, and Well-Being. *International Journal of Behavioral Development*, 21, 555–570.
- Sallay H. (2002, September), *Identity Styles in Focus: Their Relation to Parenting and Their Role in the Development of Openness and Need for Cognition*. Paper Presented at the Meetings of the European Association for Research on Adolescence, Oxford, England.
- Schwartz S.J., Montgomery M.J. (2002), Similarities or Differences [in:] *Identity Development? The Impact of Acculturation and Gender on Identity Process and Outcome*. *Journal of Youth and Adolescence*, 31, 359–372.
- Schwartz S.J., Mullis R.L., Waterman A.S., Dunham R.M. (2000), Ego Identity Status, Identity Style, and Personal Expressiveness: An Empirical Investigation of Three Convergent Constructs. *Journal of Adolescent Research*, 15, 504–521.
- Seabl J. (2009), Relating Identity Processing Styles to Commitment and Self-Esteem Among College Students. *Journal of Psychology in Africa*, 19, 309–314.
- Senejko A. (2007), Style kształtowania tożsamości u młodzieży a ustosunkowanie wobec zagrożeń [Identity Styles of Adolescents and Their Attitudes Toward Threats] [in:] B. Harwas-Napierała, H. Liberska (eds.), *Tożsamość a współczesność [Identity in the Present Day]*, 101–128. Poznań: Wydawnictwo Naukowe UAM.
- Soenens B., Duriez B., Goossens L. (2005), Social-Psychological Profiles of Identity Styles: Attitudinal and Social-Cognitive Correlates in Late Adolescence. *Journal of Adolescence*, 28, 107–125.
- Sramova B., Fichnova K. (2008), Identity and Creative Personality. *Studia Psychologica*, 50, 357–369.
- Srivastava R.K. (1993), Cultural Contexts and Identity Style. *Indian Journal of Psychology*, 68, 35–44.
- Streitmatter J. (1993), Identity Status and Identity Style: A Replication Study. *Journal of Adolescence*, 16, 211–215.
- Vleioras G., Bosma H.A. (2005), Are Identity Styles Important for Psychological Well-Being? *Journal of Adolescence*, 28, 397–409.
- Webster D.M., Kruglanski A.W. (1996), Individual Differences in Need for Cognitive Closure. *Journal of Personality and Social Psychology*, 67, 1049–1062.
- Xu S. (2009), What are the Relations between Identity Styles and Adolescents' Academic Achievement? A Study of College Students at a Private University in China. *International Journal of Adolescence and Youth*, 14, 299–311.