

Identity styles and academic achievement: mediating role of academic self-efficacy

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Abstract The purpose of this study was to assess the mediating effect of self-efficacy on the relationship between identity styles and academic achievement. Four-hundred high school students (200 male, 200 female) who were selected through cluster random sampling, completed the Revised Identity Styles Inventory (ISI, 6G) and Morgan-Jink Student Efficacy Scales (MJSES). Path analysis was used to analyze the data. In general, the results indicated that informational identity style had a positive direct impact on academic achievement, while diffuse/avoidance identity style had a negative effect on academic achievement. Data also suggested that informational and normative identity style had a positive influence on academic achievement through the mediation of academic self-efficacy.

Keywords Identity styles “Informational, Normative, Diffuse/Avoidance” · Academic self-efficacy · Academic achievement

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1 Introduction

Adolescence as a crucial period in an individual's life is related, on one hand, to changes of self-relevant beliefs and, on the other hand, to new social and educational expectations. What causes the integration of these changes is identity.

According to Erikson (1968), a sense of identity emerges as the adolescent copes with social demands and developmental challenges, and attempts to give meaning to his choices and commitments of his life. Based on a social-cognitive perspective, (Berzonsky 1993, 2003, 2004a), conceptualized identity as a self-theory. A self-theory is a conceptual structure made up of assumptions, postulates, and constructs relevant to the self as the adolescent interacts with the physical and social world (Epstein 1980). It contains procedural knowledge or representative schemas or personal constructs for understanding and making sense of events and personal experiences (Berzonsky 1988, 1993).

According to Berzonsky (1993), self-theories serve as the frame of reference for processing and interpreting self-relevant information, encountered in the course of everyday life. Therefore, not only does self-theory originate from previous behaviors, but it also involves information-processing strategies that give direction to an individual's attempts to adapt to and confront everyday life situations. Individuals theorize about their self in different ways, and they vary in how they meet the situations in which they should make decisions, deal with personal problems, and process information (Berzonsky 1990). These individual differences are observed in the process through which identity standards are internalized and utilized as well as the way through which behavior is regulated (Berzonsky 2004b).

Berzonsky has identified three social-cognitive processing orientations or styles: informational, normative, and diffuse-avoidant (Berzonsky 1989a, 1993). An informational style is typical of adolescents who seek out and evaluate self-related information actively. This style is positively associated with cognitive complexity, self-reflection, problem-oriented coping style, rational epistemic style, and consciousness, planning, decision-making, and highest level of self-esteem, psychological well-being, academic autonomy and goal-directedness (Berzonsky and Kuk 2005; Nurmi et al. 1997; Berzonsky and Kuk 2000; Dollinger 1995).

Adolescents with a normative identity style rely on the expectations, values, and prescriptions held by significant others when confronting identity relevant problems (Berzonsky 1990). They possess stable and foreclosed self-concepts, are inflexible in encountering ambiguous situations and have a high need for structure and cognitive closure. They display high levels of conscientiousness, have a crystallized self-theory composed of change-resistance, have a rather low degree of emotional independence and their educational objectives are controlled by others (Berzonsky and Kuk 2005; Nurmi et al. 1997; Berzonsky and Kuk 2000; Berzonsky 1989b; Soenens et al. 2005a).

Adolescents with a diffuse-avoidant identity style, tend to have behavior that is controlled and dictated by situational demands (Berzonsky 1990). This identity processing style is associated with low levels of self-awareness, cognitive persistence, and low self-esteem, high levels of dysfunctional cognitive strategies, emotion-oriented coping style, and lack of educational purpose (Berzonsky and Kuk 2005; Nurmi et al. 1997; Berzonsky 1994a; Berzonsky and Kuk 2000). Diffuse-avoidant identity style,

leads to an inconsistent and fragmented self-theory and constant approval from others (Berzonsky 1994b, 2004b).

The relationship between identity processing styles and variables related to academic performance has been the subject of much research. Boyed et al. (2003) showed that diffuse-avoidant identity style is negatively associated with expectations about academic success, while informational and normative styles are positively associated with this variable. Berzonsky and Kuk (2000) also found a positive relationship between informational and normative identity styles and educational purpose and academic autonomy, a negative relationship between diffuse-avoidant processing style and academic purpose and autonomy. Moreover, diffuse-avoidant identity style was associated with a low score in feeling of efficacy, accompanied by task-irrelevant efforts, and task avoidance (Nurmi et al. 1997). Based on the aforementioned, the question of interest is: "Are identity processing styles directly associated with academic achievement"?

Berzonsky and Kuk (2005) indicated a number of modest but reliable correlations between different identity styles and academic performance. According to their findings, 1–6% of the variance in academic achievement is predicted by identity styles and there is not a difference in academic achievement regarding the different identity styles. Berzonsky and Kuk attributed this lack of difference to characteristics of their sample (University students) and the optimal use of cognitive processing. Can these findings be replicated among high school students? By considering academic autonomy (the ability to exercises self-discipline, plan effectively and handle uncertainty by engaging in self-regulated learning, Berzonsky and Kuk 2000; Berzonsky 2005) as a mediating variable, they found that only the relationship between an informational identity style and academic performance was significant. In other words, academic autonomy was unable to mediate the relationship between normative and diffuse-avoidant identity styles. Based on the findings, it seems that another variable is needed: "Can academic self-efficacy, play a mediating role in the relationship between identity styles and academic achievement"?

Within the social-cognitive perspective (Bandura 1994, 1997), self-efficacy beliefs, is the individual's perceptions of his/her ability to perform adequately in a given situation. According to the social-cognitive theory, an individuals' perception of self-efficacy impacts many aspects of their lives, including their goals, their decisions, the amount of effort in accomplishing tasks, the positivity or negativity of thought patterns and their level of perseverance in facing challenges (Bandura 1991). In sum, perceptions of efficacy, influence how people behave, think, feel, and self-motivate (Carway et al. 2003).

A body of research's findings has revealed a positive relationship between self-efficacy beliefs and academic performance (Linnenbrink and Pintrich 2003; Lane and Lane 2001; Wolters and Pintrich 1998; Lane et al. 2004; Newby-Fraser and Schlebusch 1998; Carway et al. 2003). The relation between identity style and self-efficacy beliefs is not clear. The results of a study by Jakubowski and Dembo (2004) did not show any significant relations between self-efficacy, informational and normative identity style. Diffuse-avoidant identity style was negatively associated with self-efficacy beliefs. In another study (Farsinejad 2004 in Iran), self-efficacy was positively associated with informational and normative identity style, and negatively associated with a

diffuse-avoidant identity style. According to these findings, identity styles, can predict academic self-efficacy.

Considering that both identity processing styles and self-efficacy beliefs as self-relevant variables (Connell 1990; Berzonsky 1990), deal with processing of self-relevant information (Berzonsky 1993; Bandura 1991), and influence many academic variables, the present study has two aims:

1. Determining the direct effect of identity styles on academic achievement;
2. Explaining the mediating role of academic self-efficacy in the model for variables related to academic achievement based on the social-cognitive approach.

2 Conceptual model

As Flores-Crespo (2007) indicated, identity has a central role in research on education, since under certain conditions it may influence school choice, classroom behaviors, career performance, and the disposition of adolescents towards schooling. Therefore, it is important to study the role of identity in academic achievement, especially when adolescents enter a new social context (school) and encounter different tasks, like self-redefinition and academic achievement. According to Erikson (1968), dealing successfully with these tasks, is strongly dependent on the context in which the adolescent is found. If the social context of the school does not fit the adolescent's needs and expectation, it can lead to academic failure (Eccles et al. 1991) and low sense of achievement in the domain of self-knowledge (Chatman et al. 2005).

Based on what was stated, this study would examine the mediating effect of self-efficacy beliefs on the relationship between identity styles and academic achievement among the high school students who have recently selected their field of study in high school. For this reason, two alternative structural models were developed (Fig. 1). Model A hypothesizes the relationship between the two constructs (identity styles, and academic achievement) as being direct. Based on Berzonsky (2004a, 2008); Jakubowski and Dembo (2004), we predict that the relation between informational identity style and academic achievement is positive, because individuals with informational identity style engage actively in self-exploration, self-regulated learning and rational processing. We anticipate that diffuse-avoidant identity is negatively related to academic achievement, due to avoiding self-exploration, self-regulated learning, and to engaging in intuition processing. Individuals with this kind of identity have a low level of self-efficacy. We predict that normative identity style is not associated with academic achievement due to a tendency to maintain current self-view, and to avoid self-regulated learning. Model B hypothesizes the relationship between identity styles and academic achievement to be mediated through self-efficacy beliefs. The components of Model B have been developed based on the theory and research studies of Berzonsky (1993, 2003, 2004a) and Bandura (1991, 1994, 1997), maintaining that both self-efficacy beliefs and identity styles are self-relevant variables and have an effect on academic achievement. Identity-processing styles provide a framework for the individual to act in the environment and imply a self-theory. Self-efficacy beliefs are considered as part of this implied theory. In the same manner, identity styles focus on the social-cognitive processes through which the social environment conveys

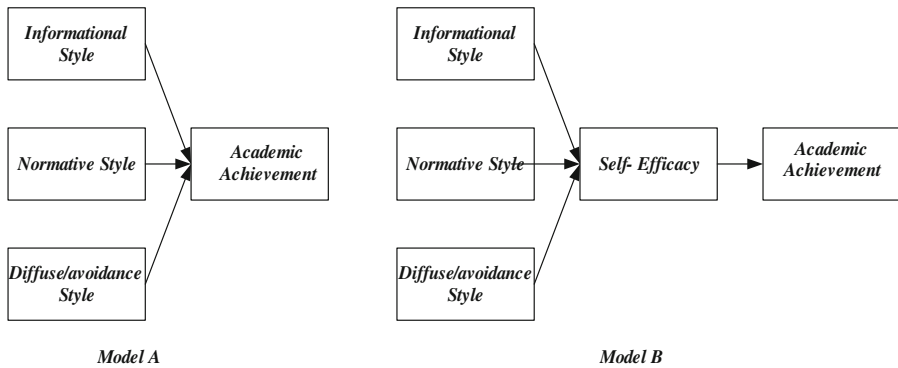


Fig. 1 Conceptual models A & B for identity style variables and academic achievement mediated by academic self-efficacy

information and feedback to people with other theories such as self-efficacy (Bandura 1977; Kirsch 1985; Maddux and Gosselin 2003). In this model, we predict that a high level of self-efficacy can play a mediated role in relation between informational and normative identity styles and academic achievement.

3 Method

3.1 Sample

The sample which is comprised of 400 (200 male & 200 female) sophomore high school students in Tehran, were selected through random cluster sampling. The average age was 15 years and 6 months with a standard deviation of 1.85.

3.2 Measures

Two scales that were translated to Persian (English to Persian and Persian to English), were used; namely, the Identity Style Inventory and the Academic Self-Efficacy Scale (MJSES).

Identity Style Inventory (ISI, 6G) was developed by Berzonsky (1989a,b) and revised by White et al. (1998). It has 40 items on a 5 point likert scale and is designed to measure three identity styles; namely, informational, normative and diffuse/avoidant (30 items), and identity commitment separately (10 items). Factor analysis of the 30 items, using varimax rotation, led to extracting three identity styles similar to the original version (White et al. 1998).

In this study, the 30 items were analyzed via Principle Component Analysis using orthogonal rotation. The results yielded three identity processing style orientations, similar to the original factors (Berzonsky 1989a,b) as well as those in White et al.'s study. The informational identity style, was characterized by 12 items (e.g., I have given much thought to my goals in life; When I have a problem, I think a lot about it), the

normative subscale by 6 items (e.g., I act according to the values I have been brought up with; I have never had serious doubts about my religious convictions), and the diffuse-avoidant identity style subscale by 10 items (e.g., I have no clear goals in life; I am not worried about things in advance, and I decide about everything at the time of happening). Furthermore, confirmatory factor analysis (CFA) was used to examine the adequacy of model fit in this sample. CFA results suggested that the three-factors fit the data obtained and indicated a suitable-fitting model (RMSEA, 0.07, GFI, 0.91, CFI, 0.89).

The reliability coefficients (internal consistency) based on Cronbach's Alpha were 0.77, 0.60, and 0.66 for informational, normative, and diffuse/avoidant styles respectively. The coefficient for identity commitment was 0.68.

(2) Morgan and Jink's Self Efficacy Scale (MJSES) (1999) has 30 items on a 4-point likert scale (strongly disagree, disagree to some extent, agree to some extent, strongly agree) and is designed to measure three subscales including talent, effort, and context. In this study, academic self-efficacy beliefs scores were utilized as global scores, and reliability coefficient was 0.74.

For academic achievement, the mean of students' grade point averages for the previous semester and the previous academic year were taken into account.

3.3 Procedure

A survey questionnaire composed of the ISI, 6G (White et al. 1998), and MJSES (Morgan and Jink's Self Efficacy Scale 1999) was administered to the students during the second session in class by a graduate teaching assistant. Two forms of the questionnaire, with the subscales in different order, were administered to distribute effects on scales (to minimize any effects that one scale may have on another scale).

To analyze data, path analysis was used through LISREL software (8.57).

4 Results

Table 1 shows the mean, standard deviation, and covariance matrix of observed variables. The Maximum likelihood method for estimating the models and their respective parameters are shown in Fig. 2.

Figure 2 shows the results for Model A. As is evident, the model fits the data well. Examination of overall goodness of fit indices indicated a perfect fit between the hypothesized model and the observed data. The path coefficient between informational

Table 1 Correlation matrix, mean values, and standard deviation of observed variables ($n = 400$)

Variables	Mean	SD	1	2	3	4	5
1. Academic self-efficacy	109.4	11.7	1				
2. Academic achievement	16.4	2.16	0.40**	1			
3. Informational identity	47.7	6.4	0.39**	0.16**	1		
4. Normative identity	20.9	4.1	0.23**	-0.02	0.32**	1	
5. Diffuse/avoidant identity	25.4	6.5	-0.20**	-0.26**	-0.26**	0.04	1

** $P < 0.01$

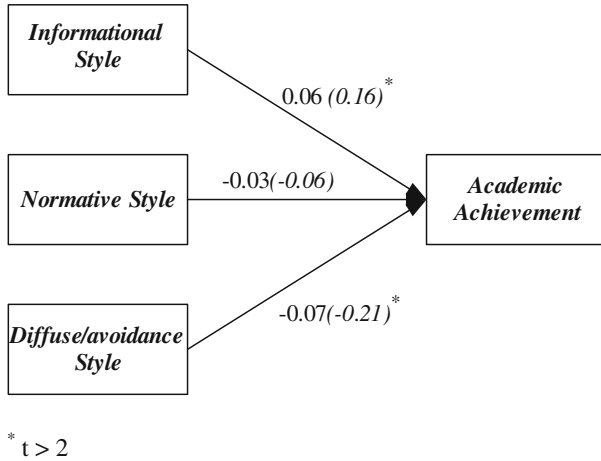


Fig. 2 Path coefficients regarding the relationship between identity styles and academic achievement in model A. *Note:* Numbers in brackets represent standard coefficients, and numbers following the brackets represent the (non-standard) overall effects

identity style and academic achievement is positive and statistically significant ($\beta = 0.16, t = 3.45$) and the coefficient for diffuse/avoidant identity style is negative and statistically significant ($\beta = -0.21, t = 4.16$). However, the coefficient for normative style is not statistically significant ($\beta = -0.21, t = 1.26$). The results indicated that the chi square value of 0.00 ($p < 1.00$) is not statistically significant. The point estimate of RMSEA was 0.00. In other words, Model A fits the data well, and the relationships between the two identity styles and academic achievement are high and statistically significant and the model explains 8% of academic achievement.

Following Judd and Kenny’s (1981) suggestion, it was expected that the direct relationships between identity styles and academic achievement might be reduced substantially by the introduction of self-efficacy as a mediating variable (Model B). Table 2 shows the covariance matrix of observed variables of the model B. Figure 3 shows the results of Model B and introduction of self-efficacy as a mediating variable.

Examination of overall goodness of fit indices for Model B indicated a relatively low fit between the hypothesized model and the observed data. Although, goodness-of-fit index (GFI) and adjusted GFI (AGFI) are equal to 0.98 and 0.90 respectively, the minimum fit function chi-square with 3 degree of freedom was 20.98 ($p = .00018$)

Table 2 Covariance matrix of observed variables for model B ($n = 400$)

Variables	1	2	3	4	5
1. Academic self-efficacy	136.79				
2. Academic achievement	10.17	4.68			
3. Informational identity style	29.23	2.75	41.49		
4. Normative identity style	11.10	-0.15	8.63	16.33	
5. Diffuse/avoidant identity style	-14.97	-3.62	-10.87	-0.95	42.92

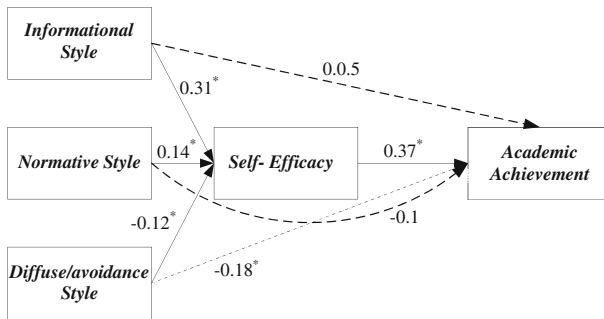


Fig. 3 Parameter coefficients related to the effect of identity styles on academic achievement mediating self-efficacy (Model B). $\chi^2 = 20.98$ ($P = 0.00018$), GFI=0.98, AGFI=0.90, RMSEA=0.123

which is statistically significant. The chi-square test of exact fit would not confirm the model completely. The point estimate of RMSEA is 0.123. As Fig. 3 shows, the standardized path coefficients relating the informational and normative identity styles to academic achievement directly are not statistically significant and the path coefficient relating the diffuse/avoidance styles to academic achievement directly is statistically significant. After modifying model B based on theoretical and research evidence, the final model that indicated a high fit between the hypothesized model and the observed data, was developed and is shown in Fig. 4.

As Fig. 4, shows the direct and indirect path coefficients relating diffuse/avoidant identity style and academic achievement are statistically significant. Although the direct path coefficient to academic achievement was not significant for normative and informational identity styles, their indirect path coefficients, in the final model, are statistically significant. The results indicated that the chi square value of 5.75 was not statistically significant. The point estimate of RMSEA is 0.069 and the GFI and AGFI are 0.99 and 0.96, which are very close to one. In general, Model B, has explained 20% of academic achievement, an amount that will be reduced to 8% if the academic self-efficacy variable is excluded.

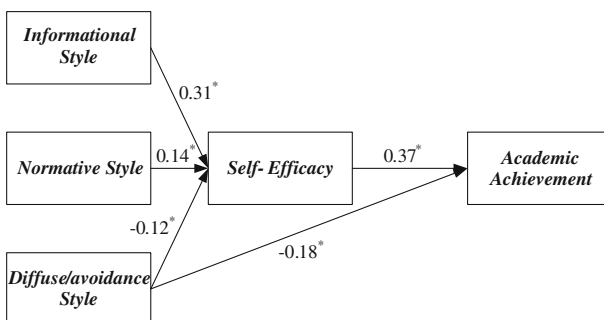


Fig. 4 Parameter coefficients related to the effect of identity styles on academic achievement mediating self-efficacy (Final Model B). $\chi^2 = 5.75$, $df = 2$ ($P = 0.056$), GFI=0.99, AGFI=0.96, RMSEA=0.069

Since the direct and indirect coefficients of diffuse-avoidant identity styles were significant, it seems that academic self-efficacy, only mediated the relationship between informational and normative identity style and academic achievement.

5 Discussion

Overall, the results of the present study are consistent with our hypothesis that academic self-efficacy beliefs have a mediating effect on the relationship between identity styles and academic achievement.

The discussion focuses on the findings of the two conceptual models.

The findings revealed that, identity styles influence academic achievement indirectly and through the mediating role of self-efficacy beliefs, and based on the proposed Model B, predict 20% of academic achievement variance. Considering that, this variance will be reduced to 8%, if academic self-efficacy is excluded (Model A), these findings indicate that self-efficacy beliefs and identity styles, as self-relevant variables, are capable of influencing academic variables.

According to the results, individuals with different identity styles have different levels of academic achievement; such that diffuse-avoidant identity style is associated negatively with academic achievement (Fig. 2), and academic self-efficacy. In line with Berzonsky's findings (2004b), it seems that individuals with a diffuse-avoidant identity style have an inconsistent self-theory. This inconsistency influences their beliefs about their own capabilities and leads to feelings of low self-efficacy. In addition, feeling of inconsistency, which is associated with ineffective cognitive strategy use, and lack of educational purpose (Nurmi et al. 1997; Berzonsky and Kuk 2005), leads to a decrease in academic achievement. Moreover, the negative feedback resulting from academic failure influences adolescents' belief system, especially their self-efficacy belief, which shows a decrease. It seems that adolescents with a diffuse-avoidant identity style are not capable of setting personal and social goals and, therefore, cannot perform well in the school context. This finding confirms the view that students with a diffuse-avoidant identity style, are at an increased risk for academic problem.

Although no direct association was found between normative identity style and academic achievement (Fig. 2), this relationship was found to be statistically significant, when academic self-efficacy was taken into account. That is the relationship between normative identity style and academic achievement was mediated by academic self-efficacy. This finding is consistent with previous research indicating that, normative identity style cannot predict academic performance since it is associated with a low level of flexibility/openness (Dollinger 1995; Berzonsky and Sullivan 1992). As Berzonsky (2005) mentions, individuals with normative identity style, automatically internalize the criteria, goals, and expectations of important others, and in cases of change in the surrounding context and when encountering new decision-making situations, they are faced with challenges in processing information. In the present study, the sample consisted of students who had recently selected their major field of study in high school and had entered a new educational structure. It seems that these circumstances are not suitable for students with normative identity, because they are still in their previous frame of reference and have not been able to internalize the

new criteria and the new context. As a result, their identity styles were negatively and insignificantly associated with academic achievement.

However, why is the relationship between normative identity style and academic self-efficacy positive and through its mediating role affects academic achievement? According to [Berzonsky \(1993, 2005\)](#), individuals with normative identity style, are capable of selecting appropriate self-regulating strategies to reach the determined goal. Therefore, when they reach their goals through these strategies (even though the goals are determined by others), the resulting feeling of success, which is also supported by important others, will lead to an increase in their sense of efficacy. Self-efficacy beliefs, which influence the four processes of selection, effort and persistence, emotion, and coping with stressful situation ([Bandura 1997](#)), can bring about a difference in the performance of individuals. As [Pajares \(1996\)](#) states, students with a high level of self-efficacy, make their greatest efforts to fulfill their tasks, believe in their competence and capability, and do not fear challenging tasks. Therefore, when normative identity style is accompanied by high level of academic self-efficacy beliefs, it can predict academic achievement.

Another finding of the present study is the (positive) significance of the direct effect of informational identity style on academic achievement. This finding which is in line with previous findings ([Berzonsky and Kuk 2000](#); [Boyed et al. 2003](#)) indicates that, due to their exploratory attitude and high commitment, individuals with an informational style believe in their capabilities, and this belief as well as their sense of efficacy, positively affects their academic achievement. As [Fig. 4](#) shows, the direct relationship between informational identity and academic achievement was found to be statistically insignificant when academic self-efficacy was taken into account. It seems that individuals with an informational identity style have a consistent and secure self-theory about themselves, which can lead to both high academic efficacy and academic achievement.

The findings of the present study indicated that Iranian adolescents with informational identity style had positive outcomes and those with diffuse-avoidant identity style had negative outcomes similar to adolescents in other cultural context. Our findings also showed that the prediction of Iranian adolescents' behaviors with normative identity styles was more complicated than two other identity styles because their positive outcomes are dependent on other variables like self-efficacy beliefs.

Our findings also showed that identity styles influence high school students' academic achievement. These findings have important implications for education as well as the social development of adolescents in Iran. The educational system in Iran is heavily based on grades and academic achievement. Our findings clearly show that in explaining (and modifying) achievement behaviors, schools should pay more attention to social development and especially characteristics related to the concept of "self". Among these concepts, the role of academic self-efficacy is highly significant.

The finding of this study indicates that self-efficacy beliefs can play a mediating role between identity styles and academic achievement. In line with others studies ([Berzonsky and Kuk 2005](#); [Soenens et al. 2005b](#)), this suggests that self-relevant variables like self-efficacy, academic autonomy and causality orientations can be considered as correlates to identity styles on the one hand and to academic achievement on the other hand.

In this study, the effect of gender on the relationship between identity styles, academic self-efficacy, and academic achievement was not investigated. We propose a consideration of this variable in future studies.

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