

A Process-Content Approach to Adolescent Identity Formation: Examining Longitudinal Associations Between Identity Styles and Goal Pursuits

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ABSTRACT Research on identity focuses on the processes involved (e.g., identity style) or its content (e.g., goals and values), but limited research has addressed both issues simultaneously. The present study investigates cross-lagged relations between identity styles (i.e., informational, normative, and diffuse-avoidant) and goals (i.e., intrinsic vs. extrinsic and openness to change vs. conservation) in a 3-wave adolescent sample ($N = 806$). Results support a reciprocal model, with process and content influencing each other. As for process effects, the informational and diffuse-avoidant style predicted decreases in conservation goals, and the normative style predicted increases in conservation and extrinsic goals. As for content effects, conservation goals increased the normative style, and extrinsic goals decreased the informational and increased the diffuse-avoidant style.

Historically speaking, religious values and institutional traditions have served as the basis for defining good character by providing people with standards to define their identity (Baumeister, 1987). However, especially in Western Europe, cultural conditions have rapidly changed over the past few decades and the legitimacy of religious and institutional values has been thoroughly questioned. In

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the absence of well-established guidelines for identity development, the need to personally resolve identity crises and to achieve an individualized sense of identity has come to the fore (Erikson, 1968). More than ever, adolescents and young adults now face the need to develop a stable and meaningful identity structure that enables them to maintain a sense of self-continuity across time and situations, and that provides them with a personal frame of reference for decision making, problem solving, and interpreting experience and self-relevant information. Although considerable research has focused either on the process of identity development (e.g., *how* individuals explore options and alternatives in an effort to form identity commitments) or on the content of identity (e.g., *which* identity-relevant choices people make), few studies have addressed these issues simultaneously. The present study aims to shed light on the interplay between such process and content issues. Specifically, in a three-wave longitudinal sample of adolescents, the present study aims to investigate longitudinal associations between different ways in which people process self-relevant information and different goals and values they adhere to and endorse. As for the content of identity, we decided to focus on goals and values because goals and values have often been referred to as important identity content. Marcia (1966), for instance, defined an identity crisis as a time of upheaval where old values or choices are being reexamined, and considered a crisis to end when a new or renewed commitment is made to certain roles or values. Compatible with this perspective, goals have been identified as an important content of identity by self-determination theorists (e.g., Soenens & Vansteenkiste, 2011).

The Process of Identity Formation

In the past, research on Erikson's identity development theory has been guided mainly by Marcia's (1966) identity status paradigm, which defines identity in terms of the basic dimensions of exploration and commitment. Exploration refers to the degree to which individuals engage in a personal search for goals and values and experiment with different social roles and ideologies. Commitment refers to the determined adherence to a set of convictions, goals, and values. Based on these two underlying dimensions, four identity statuses were identified: achievement (high exploration, high commitment), moratorium (high exploration, low commitment), foreclosure (low exploration, high commitment), and diffusion (low exploration,

low commitment). Marcia's model has inspired an impressive body of research (for reviews, see Berzonsky & Adams, 1999; Kroger & Marcia, 2011). However, the identity status paradigm has been criticized for focusing primarily on individual differences in the outcome of the identity formation process (Côté & Levine, 1988; van Hoof, 1999), leading some authors to shift focus to the actual process rather than the outcome (e.g., Berzonsky, 1990; Kerpelman, Pittman, & Lamke, 1997; Luyckx, Goossens, Soenens, & Beyers, 2005; Meeus, 1996).

Berzonsky's (1990) model takes the most prominent place in recent research on the identity formation process. In this model, three identity styles are proposed, each of which captures stylistic differences in how individuals approach identity-relevant tasks and problems. First, an *informational style* is typical of adolescents who engage in a process of exploration by seeking out and evaluating identity-relevant information prior to making committed decisions. Adolescents with this identity style display high levels of cognitive complexity, engage in problem-focused coping, and are empathic, open to new information, critical toward their self-concepts, and willing to revise aspects of their identity when faced with discrepant information, which should result in a well-differentiated and integrated sense of personal identity (Berzonsky, 1990; Soenens, Duriez, & Goossens, 2005). Individuals with high informational scores tend to define themselves in terms of personal goals and values (Berzonsky, Macek, & Nurmi, 2003; Luwak, Ferrari, & Cheek, 1998). Second, a *normative style* is typical of adolescents who rely on the norms and expectations of significant others (e.g., parents and authority figures) when having to make identity-relevant decisions. Adolescents with this identity style tend to conform to traditional opinions and have high self-control, but a high need for closure as well. They have an inflexible value system that they try to preserve by shutting themselves off from information that might threaten their most crucial (often authoritarian) goals and values (Berzonsky, 1990, Soenens et al., 2005). Normative individuals tend to define themselves in terms of collective considerations such as religion, family, and nationality (Berzonsky et al., 2003; Luwak et al., 1998). Finally, a *diffuse-avoidant style* is typical of adolescents who avoid personal issues and procrastinate decisions until situational demands dictate their behavior. Adolescents with this identity style display low levels of active information processing and problem solving and high levels

of self-handicapping and impulsivity. They accommodate their identity in reaction to social demands, resulting in a loosely integrated identity structure (Berzonsky & Ferrari, 2009). Diffuse-avoidant individuals tend to define themselves in terms of social attributes such as reputation and popularity (Berzonsky et al., 2003).

The Content of Identity

Values constitute central aspects of people's self-concept and are considered as general beliefs about (un)desirable modes of conduct (Feather, 1994; Rokeach, 1973) or as transsituational goals that vary in importance as guiding principles in one's life (Schwartz, 1992). Self-determination theory (Deci & Ryan, 2000) distinguishes the goals people pursue and the values they hold in terms of whether they are intrinsic or extrinsic in nature (Kasser & Ryan, 1996). Intrinsic goals (e.g., community contribution, self-development, and affiliation) are considered inherently satisfying to pursue and are said to be consistent with the satisfaction of the basic psychological needs for autonomy, competence, and relatedness as postulated in self-determination theory. In contrast, when people pursue extrinsic goals (e.g., financial success, social recognition, and physical attractiveness), they make their endeavors contingent upon the attainment of external signs of worth and success. Such an extrinsic goal pursuit is said to be unrelated or even negatively related to basic need satisfaction (Kasser, 2002). A stronger focus on extrinsic goals was found, among other things, to negatively predict well-being (e.g., Duriez & Klimstra, 2011; Kasser, 2002) and to positively predict right-wing authoritarianism (Duriez, 2011b) and social dominance orientation (Duriez, Vansteenkiste, Soenens, & De Witte, 2007).

Given the description of the normative identity style, with its reliance on norms and expectations of significant others throughout the identity formation process, a second type of goals and values that is relevant to the study of identity pertains to conformity, which deals with attaching importance to obedience, traditional values, and traditional ways of life. Although conformity was not present in the original intrinsic/extrinsic goal distinction (Kasser & Ryan, 1996), it was found to cluster together with the extrinsic goals in a circumplex model that held across 15 different cultures (Grouzet et al., 2005; see Figure 1). However, on a conceptual level, it seems as though conformity goals can as easily be pursued alongside intrinsic goals such

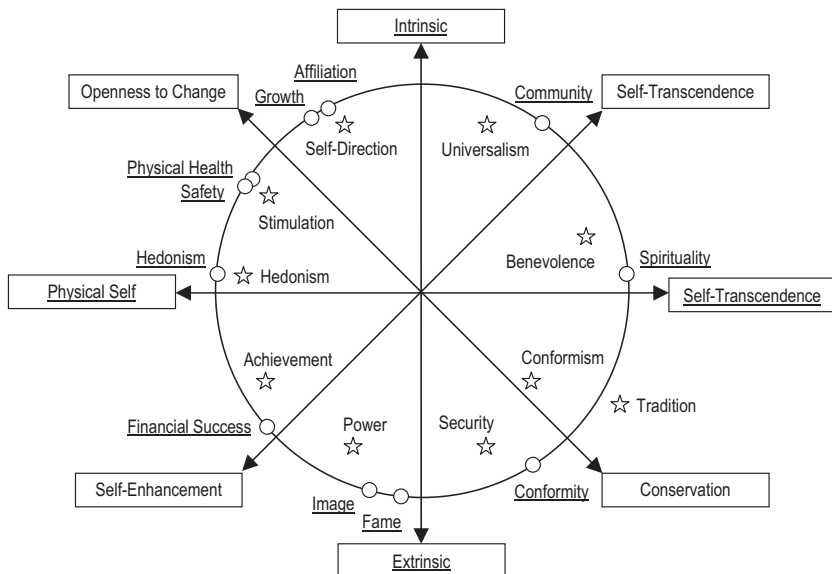


Figure 1
Integration of the circumplex model of Grouzet et al. (2005) and the quasi-circumplex model of Schwartz (1992) as presented in Schwartz and Boehnke (2003). Goals and values that are indicated by circles and that are underlined belong to the model of Grouzet (2005), and goals and values that are indicated by stars and that are not underlined belong to the model of Schwartz (1992).

as community contribution or affiliation as alongside extrinsic goals such as financial success or social recognition. Moreover, the location of conformity in the extrinsic goal pole seems inconsistent with Schwartz’s (1992) theory about the structure of the value domain (see Figure 1). In this theory, which received empirical support in over 60 countries (Schwartz & Boehnke, 2003; Schwartz & Sagiv, 1995), the value domain is thought to consist of two orthogonal dimensions: self-enhancement versus self-transcendence, opposing power and achievement values that relate to extrinsic goal contents to universalism and benevolence values that relate to intrinsic goal contents; and conservation versus openness to change, opposing conformity, tradition, and security to self-direction and stimulation. Both models map distances between goals and values, but given that one is allowed to draw higher order dimensions anywhere (Schwartz & Boehnke, 2003), the exact location of the higher order dimensions is

open to discussion. Figure 1 shows that the intrinsic/extrinsic dimension intersects the area encompassing the intrinsic goals of community contribution, growth, and affiliation while being situated at the outer border of the area encompassing the extrinsic goals of financial success, image, and fame. As a side effect, conformity is at a somewhat closer distance from the extrinsic pole than financial success. However, it would make equal sense to draw this dimension so that it would intersect the extrinsic goal area, in which case it would coincide with the self-enhancement versus self-transcendence dimension and be orthogonal to the conservation versus openness to change dimension. Therefore, we deemed it important to not only include goals relating to the intrinsic/extrinsic distinction made within self-determination theory but to also take into account goals relating to the conservation versus openness to change distinction. The distinction between intrinsic versus extrinsic goals and conservation versus openness to change goals received support in recent studies (Duriez, Soenens, & Vansteenkiste, 2007, 2008; Duriez, Soenens, Neyrinck, & Vansteenkiste, 2009).

It should be stressed that the distinction between intrinsic and extrinsic goals that is made within self-determination theory should not be confused with the classical distinction between intrinsic and extrinsic motivation. Whereas the intrinsic/extrinsic goal distinction refers to differences in what people pursue in life, the intrinsic/extrinsic motivation distinction refers to differences in why people pursue whatever it is they pursue. More specifically, the latter distinction refers to whether people pursue a goal because of its inherent value or because it is a means to an end. According to self-determination theory, any goal (whether intrinsic or extrinsic in nature) can be pursued for intrinsic or extrinsic reasons. The intrinsic goal of community contribution, for instance, can be pursued because of its inherent value or because it meets with the approval of others. In spite of this, research has shown that some goals (i.e., intrinsic goals) are more likely to result from intrinsic motivation, whereas other goals (i.e., extrinsic goals) are more likely to result from extrinsic motivation (e.g., Duriez, 2011a).

The Present Study

Although considerable studies have focused either on the process of identity formation (e.g., *how* individuals explore options and alternatives in an effort to form a sense of identity) or on the content of

identity (e.g., *which* goals and values they adopt), only recently have researchers taken an interest in studying these issues simultaneously. Using identity styles as an indicator of the identity formation process and value orientations as an indicator of identity content, Berzonsky, Ciecuch, Duriez, and Soenens (2011) examined cross-sectional relations between identity styles and values. In line with the description of both Berzonsky's (1990) identity styles and Schwartz's (1992) value dimensions, Berzonsky et al. (2011) hypothesized that an informational identity style would relate to self-transcendence rather than self-enhancement (a proxy of the intrinsic/extrinsic distinction) and to openness to change rather than conservation. This hypothesis is also in line with research showing that an informational identity style relates to rationality and empathy (which are conceptually related to self-transcendence) as well as to self-reflection and openness to new identity-relevant information (which relate to openness to change; see above). In addition, in line with research showing that a normative identity style relates to a firm but rigid and inflexible commitment to traditional views stressing the importance of family, religion, and national identity (which relate to conservation) but not to anything conceptually related to the self-enhancement versus self-transcendence distinction (see above), a normative identity style was expected to relate to conservation rather than openness to change. Finally, in line with research showing that a diffuse-avoidant style relates to an impulsive present orientation and an externally controlled, situation-specific mode of behavior that is guided by social considerations such as popularity and reputation (which relate to self-enhancement values and extrinsic goals) but not to anything directly related to the conservation versus openness to change distinction (see above), a diffuse-avoidant identity style was expected to relate to self-enhancement rather than self-transcendence. Results were in line with these expectations.

Because the data of Berzonsky et al. (2011) were cross-sectional in nature, conclusions about the direction of effects could not be drawn. In order to shed light on this, the present study investigated cross-lagged relations between identity styles and goal pursuits in a three-wave longitudinal sample of adolescents (i.e., the period in which developing a sense of identity becomes of crucial importance). Specifically, the present study examined whether the dynamics at play during identity development can best be described in terms of a process model, a content model, or a reciprocal model. In the process

model, goal pursuits are assumed to result from the identity styles people adopt. In the content model, goal pursuits are assumed to influence the identity styles adolescents will adopt in order to tackle identity-relevant dilemmas. In the reciprocal model, a dynamic interaction between identity styles and goals is supposed to take place, with identity styles and goals mutually influencing each other.

Based on a classical view on identity development (e.g., Marcia, 1966), a process model can be expected to best describe the dynamics underlying identity development. The classical view on identity development regards identity commitments (including commitments to goals and values) as the outcome of the identity exploration process. Hence, identity styles can be expected to precede goal pursuits. Such a process model would also be in line with self-perception theory (Bem, 1972), which states that people develop their attitudes by observing their behavior and, hence, will deduct their goals and values from observing the way they deal with identity-relevant issues. Based on research on intergenerational similarity in goals and values (e.g., Grusec, Goodnow, & Kuczynski, 2000; Knafo & Schwartz, 2003), however, a content model can be expected to best describe the underlying dynamics. From this perspective, it could be argued that commitment to goals and values does not so much result from a process of identity exploration but rather from either genetic factors or a social learning process leading children to internalize parental goals and values. From this perspective, it could be deduced that goal pursuits determine how adolescents will deal with identity-relevant information: they will deal with such information in accordance with the goals and values that are transmitted within the family. Given that we see merit in both a process and a content model, we expect the co-occurrence of process and content effects. In other words, we expect a reciprocal model to emerge (a) in which internalized parental goals and values will shape whether and where adolescents will look for identity-relevant information and how they will process this information (which is in line with a content model) and (b) in which whether and where adolescents will look for information and how they will process this information will affect the goals and values they will adopt (which is in line with a process model). Such a reciprocal model would be in accordance with recent dynamic views on identity development (e.g., Luyckx et al., 2005), which stress a continuous interaction between the commitments people make and how and to what extent people explore alternatives.

METHOD

Participants

Data were collected among academic track students during school hours in secondary schools in the Flemish-speaking part of Belgium at three different time points with a 1-year interval. The first data wave (Time 1) consisted of 904 participants, the second (Time 2) consisted of 867 participants, and the third (Time 3) consisted of 658 participants. Participants who took part in at least two waves were included in the analyses, resulting in a sample of $N = 806$ (mean age at Time 1 = 14.93, $SD = 0.49$; age range at Time 1 = 14 to 18; 49% male). All participants had Belgian nationality and belonged to the Flemish-speaking majority. Participants with and without complete data were compared in terms of identity styles and goal pursuits using Little's (1988) Missing Completely at Random test. A nonsignificant chi-square ($\chi^2(139) = 157.21$, *ns*) suggested that missing values could be reliably estimated using the expectation-maximization algorithm (Schafer & Graham, 2002). Further, both at Time 2 and Time 3, a logistic regression analysis tested whether sample attrition (dropout = 0; retention = 1) could be predicted by gender (male = 1; female = 2) and the Time 1 study variables. For this purpose, gender was entered in Step 1, and the goals and styles were entered in Step 2. Neither step predicted retention at Time 2 (Model $\chi^2(1) = 3.15$, *ns*, for Step 1; Model $\chi^2(5) = 13.02$, *ns*, for Step 2) or Time 3 (Model $\chi^2(1) = 3.86$, *ns*, for Step 1; Model $\chi^2(5) = 11.15$, *ns*, for Step 2), attesting to the fact that there were no substantial differences between those who stayed in the study and those who dropped out.

Measures

Items for all scales were administered in Dutch, accompanied by 5-point Likert scales anchored by *completely disagree* and *completely agree*. At all time points, participants completed the Dutch version (Duriez, Soenens, & Beyers, 2004) of the Identity Style Inventory (ISI-3; Berzonsky, 1992). The ISI-3 contains an informational scale (INFO; 10 items, e.g., "I've spent a great deal of time thinking seriously about what I should do with my life"), a normative scale (NORM; 10 items, e.g., "I prefer to deal with situations where I can rely on social norms and standards"), and a diffuse-avoidant scale (DIFF; 10 items, e.g., "I'm not really thinking about my future now; it's still a long way off"). Cronbach alphas were .68, .69, and .73 for INFO; .57, .58, and .60 for NORM; and .72, .73, and .75 for DIFF at Time 1, Time 2, and Time 3, respectively. Although the reliability was low for NORM, this is in line with previous findings (e.g., Berzonsky, 1992; Duriez et al., 2004).

Hence, as in previous research, at all time points, scores for each scale were obtained by averaging its item scores.

At all time points, participants completed a Dutch version (Duriez, Vansteenkiste, et al., 2007) of the Aspiration Index (Kasser & Ryan, 1996), which assesses the importance placed on the extrinsic goals of financial success (two items; e.g., “It is important for me to be financially successful in life”), image (two items; e.g., “It is important for me to be attractive and good-looking”), and fame (two items; e.g., “It is important for me to receive recognition and admiration for the things I do”) and the intrinsic goals of growth (two items; e.g., “It is important for me to develop myself and continue to grow as a person”), community contribution (two items; e.g., “It is important for me to try to do things that improve society”), and affiliation (two items; e.g., “It is important for me to build solid and intimate friendships”). As in Duriez, Vansteenkiste, et al. (2007), systematic response sets were controlled for by subtracting an individual’s mean score from each individual score, after which an exploratory factor analysis was conducted on the subscales. At all time points, the scree plot pointed to a one-factor solution (explaining over 40% of the variance) on which the intrinsic scales had minimal positive loadings of .50 and the extrinsic scales had minimal negative loadings of $-.50$. Subsequently, after reversing the intrinsic items, an extrinsic versus intrinsic (EXT) score was computed by averaging all items. Alphas were .76 at Time 1, .74 at Time 2, and .78 at Time 3. A positive score indicates a tendency to value extrinsic over intrinsic goals.

Additionally, based on the Portrait Values Questionnaire (Schwartz et al., 2001), the importance placed on the conservation goals of conformity (two items; e.g., “It is important for me to follow rules at all times, even when no one is watching”) and tradition (two items; e.g., “It is important for me to follow the customs of my family and society as a whole”) and the openness to change goals of self-direction (two items; e.g., “It is important for me to make my own decisions, be free, and not dependent on others”) and stimulation (two items; e.g., “It is important for me to have an exciting and adventurous life”) was assessed. Again, systematic response sets were controlled for by subtracting an individual’s overall mean score from each individual score, after which an exploratory factor analysis was conducted on the subscales. At all time points, the scree plot pointed to a one-factor solution (explaining over 50% of the variance) on which the openness to change subscales had minimal positive loadings of .60 and the conservation subscales had minimal negative loadings of $-.60$. Subsequently, after reversing the openness to change items, a conservation versus openness to change (CON) score was computed by averaging all items. Alphas were .74 at Time 1, .75 at Time 2, and

.75 at Time 3. A positive score indicates a tendency to value conservation over openness to change goals.

Confirmatory factor analyses on the Time 1 items were performed to check whether the five constructs (i.e., INFO, NORM, DIFF, EXT, and CON) can be distinguished. For this purpose, a five-factor solution was compared with various four-factor solutions (each specifying two constructs to load onto one factor) in terms of the Satorra-Bentler Scaled chi-square (SBS- χ^2 ; Satorra & Bentler, 1994) instead of the regular chi-square because the former corrects for possible data non-normality. A five-factor solution (SBS- $\chi^2(1165) = 5301.94$) fit the data better than four-factor solutions in which the following identity styles loaded onto one factor: INFO and NORM, INFO and DIFF, and NORM and DIFF (SBS- $\Delta\chi^2(4) = 441.25, 626.64, \text{ and } 480.34$, respectively; $ps < .001$). In addition, a five-factor solution fit the data better than a four-factor solution in which the goal dimensions (i.e., EXT and CON) loaded onto one factor (SBS- $\Delta\chi^2(4) = 1137.81, p < .001$). Finally, the five-factor solution fit the data better than solutions in which the following goal and style combinations loaded onto one factor: INFO and EXT, INFO and CON, NORM and EXT, NORM and CON, DIFF and EXT, and DIFF and CON ($\Delta\text{SBS-}\chi^2(4) = 1345.79, 1570.80, 314.61, 381.14, 878.51, \text{ and } 1503.20$, respectively; $ps < .001$). In the five-factor solution, all items had a significant loading on their respective factor.

RESULTS

Preliminary Analyses

Means, standard deviations, and correlations can be found in Table 1. As for the identity styles, at all time points, INFO was positively related to NORM and negatively to DIFF. In addition, NORM and DIFF were positively related at Time 2 and Time 3. As for the goals, although unrelated at Time 1, EXT and CON were positively related at Time 2 and Time 3. In line with previous research reporting cross-sectional relations between the identity styles and Schwartz's (1992) value dimensions (Berzonsky et al., 2011), at all time points, whereas EXT was negatively related to INFO and positively to DIFF, CON was positively related to NORM. In addition, EXT and NORM were positively related at Time 2 and Time 3, and CON was positively related to INFO at Time 1. Finally, relations between CON and DIFF varied over time (from negative at Time 1 over unrelated at Time 2 to positive at Time 3). Between-time correlations showed substantial over-time

Table 1
Means, Standard Deviations (SD), and Correlations Between the Variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. T1 INFO	2.92	.62														
2. T2 INFO	2.96	.52	.57**													
3. T3 INFO	3.13	.50	.59**	.66**												
4. T1 NORM	2.98	.47	.36**	.22**	.19**											
5. T2 NORM	2.97	.46	.21**	.35**	.19**	.46**										
6. T3 NORM	3.01	.41	.20**	.23**	.35**	.39**	.53**									
7. T1 DIFF	2.82	.57	-.21**	-.21**	-.20**	-.07	-.08*	-.02								
8. T2 DIFF	2.76	.58	-.12**	-.12**	-.20**	-.10**	.11**	.07	.53**							
9. T3 DIFF	2.66	.50	-.18**	-.18**	-.21**	.00	.05	.17**	.53**	.62**						
10. T1 EXT	-0.78	.81	-.20**	-.19**	-.19**	.06	.08*	.11**	.29**	.20**	.28**					
11. T2 EXT	-0.78	.79	-.16**	-.22**	-.19**	.06	.13**	.12**	.15**	.22**	.26**	.62**				
12. T3 EXT	-0.78	.73	-.20**	-.15**	-.24**	.04	.14**	.19**	.24**	.18**	.31**	.63**	.68**			
13. T1 CON	-1.03	.96	.12**	.04	-.03	.36**	.24**	.21**	-.08*	-.07*	.07*	.04	.07*	.12**		
14. T2 CON	-0.95	.94	.01	.03	-.03	.24**	.27**	.24**	-.06	-.01	.03	.04	.11**	.09**	.54**	
15. T3 CON	-0.87	.81	.02	-.07	-.04	.18**	.19**	.31**	-.06	-.07	.09*	.10**	.13**	.23**	.48**	.55**

Note. T1 = Time 1; T2 = Time 2; T3 = Time 3; INFO = informational; NORM = normative; DIFF = diffuse-avoidant; EXT = extrinsic versus intrinsic; CON = conservation versus openness to change. * $p < .05$. ** $p < .01$.

rank-order stability in all constructs, both from Time 1 to Time 2, from Time 2 to Time 3, and from Time 1 to Time 3. Specifically, stability coefficients ranged from .59 to .66 for INFO, from .39 to .53 for NORM, from .53 to .62 for DIFF, from .62 to .68 for EXT, and from .48 to .55 for CON (all $ps < .001$; see Table 1).

To assess mean-level changes across time, a repeated-measures ANOVA was performed with measurement time as a within-subjects variable and INFO, NORM, DIFF, EXT, and CON as dependent variables. As for the identity styles, INFO showed both a linear, $F(1, 805) = 171.70, p < .001$, and a quadratic increase, $F(1, 805) = 21.17, p < .001$; NORM did not show any significant change; and DIFF showed a linear decrease, $F(1, 805) = 72.92, p < .001$. As for the goals, although EXT did not show any significant change, CON showed a linear decrease, $F(1, 805) = 24.68, p < .001$.

To assess gender differences, ANOVAs with gender as a between subjects-variable and identity styles and goals as dependent variables were performed. As for identity styles, gender differences were obtained in INFO at Time 2 and Time 3, $F(1, 805) = 4.44$ and $4.14, p < .05$, with boys scoring higher ($M = 3.00$ and $3.17; SD = .55$ and $.52$) than girls ($M = 2.92$ and $3.10; SD = .49$ and $.47$); NORM at Time 1, Time 2, and Time 3, $F(1, 805) = 4.80, 8.17$, and $19.45, p < .05$, with boys scoring higher ($M = 3.02, 3.01$, and $3.07; SD = .47, .47$, and $.41$) than girls ($M = 2.95, 2.93$, and $2.94; SD = .46, .44$, and $.41$); and DIFF at Time 1, Time 2, and Time 3, $F(1, 805) = 21.86, 41.96$, and $56.70, p < .001$, with boys scoring higher ($M = 2.91, 2.89$, and $2.79; SD = .57, .57$, and $.49$) than girls ($M = 2.72, 2.64$, and $2.53; SD = .56, .55$, and $.48$). As for goals, differences occurred in EXT at Time 1, Time 2, and Time 3, $F(1, 805) = 11.73, 32.50$, and $34.50, p < .001$, with boys scoring higher ($M = -.69, -.62$, and $-.63; SD = .84, .81$, and $.71$) than girls ($M = -.88, -.93$, and $-.92; SD = .78, .75$, and $.71$); and CON at Time 1 and Time 2, $F(1, 805) = 19.64$ and $12.52, p < .001$, with boys scoring higher ($M = -.88$ and $-.83; SD = .92$ and $.93$) than girls ($M = -1.17$ and $-1.06; SD = .98$ and $.95$).

Primary Analyses

Structural equation modeling was used to examine whether identity styles would predict over-time rank-order changes in goal pursuits and whether goal pursuits would predict over-time rank-order changes in identity styles. Covariance matrices were analyzed in

LISREL, and solutions were generated on the basis of maximum-likelihood estimation. To evaluate model fit, in addition to the Satorra-Bentler Scaled chi-square (Satorra & Bentler, 1994), the comparative fit index (CFI) and the standardized root mean square residual (SRMR) were inspected. Good model fit is indicated by an SBS- χ^2 to degree of freedom ratio (SBS- χ^2 /df) smaller than 3.0 (Kline, 1998) and by combined cut-off values of at least .95 for CFI and not more than .09 for SRMR (Hu & Bentler, 1999).

In Step 1, a baseline model specifying stability coefficients and within-time correlations between the various measures was estimated (SBS- $\chi^2(60) = 213.96$; CFI = 0.97; SRMR = .060). In Step 2, this model was compared to a model specifying cross-lagged effects from identity styles to goal pursuits (i.e., the process model) and a model specifying cross-lagged effects from goal pursuits to identity styles (i.e., the content model). Both the process and content model fit the data better than the baseline model (Δ SBS- $\chi^2(12) = 38.22$ and 57.10 , respectively; $p < .001$). In Step 3, these models were compared to a reciprocal model specifying cross-lagged effects from identity styles to goal pursuits and vice versa (see Figure 2). This model fit the data better than the process and content model (Δ SBS- $\chi^2(12) = 55.81$ and 36.94 , respectively; $p < .001$). Stability coefficients in the reciprocal

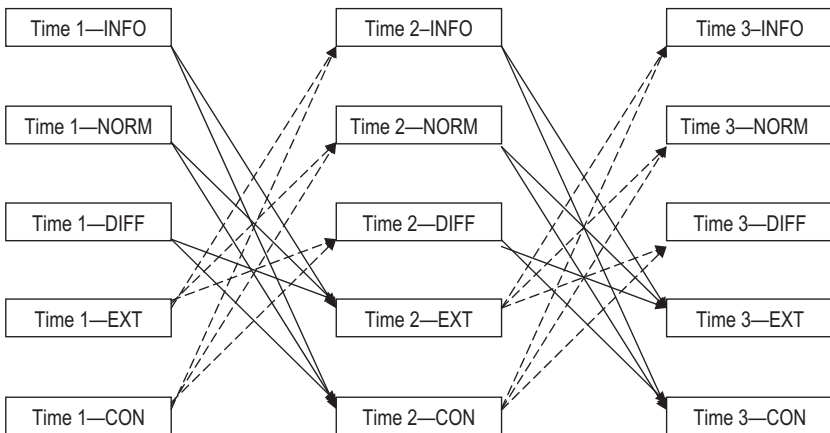


Figure 2

Cross-lagged paths in the structural model that was tested, including paths from the identity styles to the goals (process effects = full lines) and from the goals to the identity styles (content effects = dashed lines).

model (all $ps < .001$) were .55, .48, and .28 for INFO; .43, .43, and .17 for NORM; .52, .44, and .27 for DIFF; .61, .48, and .32 for EXT; and .52, .40, and .23 for CON (from Time 1 to Time 2, from Time 2 to Time 3, and from Time 1 to Time 3, respectively). In order to test the stability and replicability of the cross-lagged effects across the two time gaps (i.e., from Time 1 to Time 2 and from Time 2 to Time 3), in Step 4, a reciprocal model in which structural paths were allowed to vary across time was compared to a more parsimonious model in which structural coefficients were fixed across time. Fixing these coefficients did not worsen model fit ($\Delta\text{SBS-}\chi^2(12) = 11.44$; *ns*). Table 2 shows the cross-lagged effects in this final model ($\text{SBS-}\chi^2(48) = 131.81$; CFI = 0.99; SRMR = .039), and Figure 3 provides a graphic display of it. As for process effects, INFO predicted relative decreases in CON, NORM predicted relative increases in EXT and CON, and DIFF predicted relative decreases in CON. As for content effects, CON predicted relative increases in NORM, and EXT predicted relative decreases in INFO and relative increases in DIFF.

Given the gender differences in identity styles and goals (see above), additional analyses tested whether structural coefficients in the final model would remain significant when gender main effects are controlled and whether structural coefficients are moderated by gender. Results show that all significant effects remained significant when including gender as a control variable. In addition, a multi-group analysis compared a constrained model in which the structural coefficients were set equal across gender ($\text{SBS-}\chi^2(158) = 394.98$; CFI = 0.96; SRMR = .079) with an unconstrained model in which these relations were allowed to vary across gender. Results showed that the unconstrained model did not fit the data better than the constrained model ($\Delta\text{SBS-}\chi^2(24) = 24.20$; *ns*), suggesting that gender did not moderate the relations in the final model.

DISCUSSION

Previous research on identity development typically focused either on the process or on the content of identity. In spite of this, virtually no studies simultaneously addressed process and content issues. Berzonsky et al. (2011) recently did investigate cross-sectional relations between one particular aspect of the identity formation process (i.e., identity styles) and one particular aspect of the content

Table 2
Cross-Lagged Paths in the Final Reciprocal Model

Process Effects	From Time 1 to Time 2	From Time 2 to Time 3
1. Effects from INFO to EXT	-.04	-.04
2. Effects from INFO to CON	-.20**	-.20**
3. Effects from NORM to EXT	.10**	.10**
4. Effects from NORM to CON	.15**	.15**
5. Effects from DIFF to EXT	-.03	-.03
6. Effects from DIFF to CON	-.10**	-.10**
Content Effects		
	From Time 1 to Time 2	From Time 2 to Time 3
7. Effects from EXT to INFO	-.04**	-.04**
8. Effects from EXT to NORM	.02	.02
9. Effects from EXT to DIFF	.06**	.06**
10. Effects from CON to INFO	-.02	-.02
11. Effects from CON to NORM	.04**	.04**
12. Effects from CON to DIFF	.00	.00

Note. INFO = informational; NORM = normative; DIFF = diffuse-avoidant; EXT = extrinsic versus intrinsic; CON = conservation versus openness to change. First coefficients are unstandardized coefficients; second coefficients are standardized coefficients. * $p < .05$. ** $p < .01$.

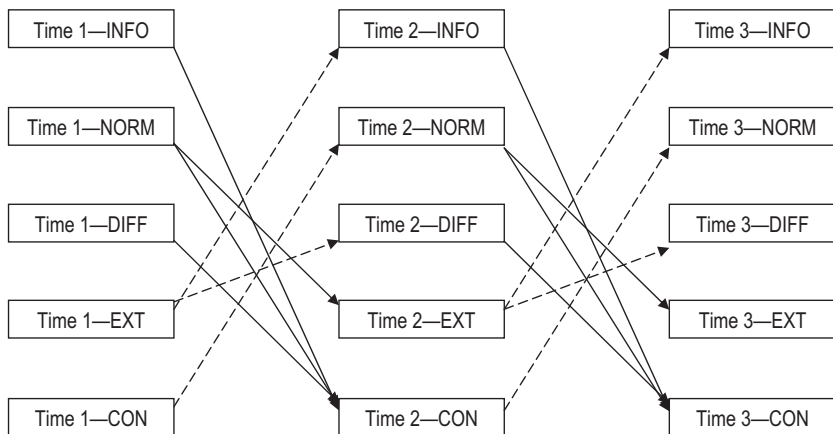


Figure 3
Significant cross-lagged paths in the final structural model, including paths from the identity styles to the goals (process effects = full lines) and from the goals to the identity styles (content effects = dashed lines).

of identity (i.e., value orientations). However, given its cross-sectional nature, this study did not allow for drawing conclusions about the direction of effects. The present study aimed to address this limitation by investigating cross-lagged relations between identity styles (i.e., informational, normative, and diffuse-avoidant) and goal pursuits (i.e., intrinsic vs. extrinsic and openness to change vs. conservation) in a three-wave adolescent sample. A model including reciprocal effects between identity styles and goal pursuits fit the data better than both a process model featuring effects from identity styles to goal pursuits only and a content model featuring effects from goal pursuits to identity styles only, suggesting a dynamic interaction of identity styles and goal pursuits in identity development. Apparently, although identity styles may partly determine the goals people adopt, they may also partly result from the goals they pursue. All observed effects were consistent across gender.

Process Effects

Based on a classical view on identity development (e.g., Marcia, 1966), which regards identity commitments (including goals and values) as the outcome of the identity formation process, and based

on self-perception theory (Bem, 1972), which states that people develop their attitudes by observing their behavior and, hence, will deduct their goals and values from observing the way they deal with identity-relevant issues, process effects can be expected to best describe identity development dynamics. In line with this, results show that the normative identity style predicts relative increases in conservation versus openness to change goals, whereas the informational and the diffuse-avoidant identity style predict relative decreases in conservation versus openness to change goals. In addition, the normative identity style was also found to predict relative increases in extrinsic versus intrinsic goals.

Given that an informational identity style is characterized by cognitive complexity, empathy, and openness to new information; a problem-focused coping style; and being critical toward one's own self-concepts, it does not seem surprising that people with an informational style more readily increasingly adopt openness to change (i.e., self-direction and stimulation) than conservation goals (i.e., tradition and conformity) relative to people with a less informational style. Consistent with the view that a diffuse-avoidant style reflects a self-serving, present-oriented approach to identity issues (Berzonsky & Ferrari, 2009; Luyckx, Lens, Smits, & Goossens, 2010), individuals with high diffuse-avoidant scores also appear to increasingly adopt openness to change rather than conservation goals relative to people with a less diffuse-avoidant style. In this case, however, this is likely due to the fact that conservation goals prevent them from focusing on immediate self-interest. In contrast, people with high normative style scores appear more likely to increase in conservation goals relative to people with a less normative style. This is consistent with research indicating that a normative style relates positively to commitment to collective identities (Berzonsky et al., 2003; Luwak et al., 1998), as well as to research indicating that a normative style relates positively to a high need for cognitive closure and authoritarian control (Soenens et al., 2005). Given that conservation goals will prevent people from subscribing to less conventional values and prevent them from choosing alternative lifestyles, they serve both the importance attached to collective identities and an authoritarian need for closure. The value these people place on tradition and their resistance to change may also explain their emotional reactions to perceived threats to the social order and institutions that anchor their lives (Duriez et al., 2004; Duriez & Soenens, 2006).

Additionally, a normative style also positively predicted extrinsic (e.g., financial success) versus intrinsic (e.g., self-development) goal pursuits. Given that people with a normative identity style are often concerned about complying with societal norms, and given that extrinsic goals are considered highly important in the contemporary consumer-oriented Western society, this should not come as a surprise. In line with this, previous research has shown that pursuing extrinsic rather than intrinsic goals positively predicts authoritarianism (Duriez, 2011b; Duriez, Vansteenkiste, et al., 2007), and, hence, might result from adopting a normative identity style.

Content Effects

Based on research on intergenerational similarity in goals and values (e.g., Grusec et al., 2000; Knafo & Schwartz, 2003), it could be argued that commitment to goals and values precedes rather than follows from the identity exploration process. Hence, from this perspective, a model in which goals and values determine how adolescents deal with identity-relevant information and which strategies they find acceptable can be expected to best describe the underlying dynamics. In line with this, results show that extrinsic goals predicted relative decreases in the informational style and relative increases in the diffuse-avoidant style, and conservation goals predicted relative increases in the normative style.

Apparently, people will prefer an identity style that allows them to deal with identity-relevant information in ways that are compatible with their already existing personal value system. People who value intrinsic goals such as self-development over extrinsic goals such as financial success and social recognition will increasingly prefer an identity style that is compatible with this focus on self-development relative to people who attach more importance to extrinsic goals. More specifically, they will increasingly prefer an identity style that is likely to result in a well-differentiated and integrated sense of identity and that is characterized by an open-ended search for identity-relevant information (i.e., an informational identity style). At the same time, they will increasingly shy away from an identity style that seems at odds with self-development, namely, an identity style characterized by avoiding personal issues and procrastinating about identity-relevant decisions (i.e., a diffuse-avoidant identity style). In addition, people who value conservation goals over

openness to change goals that focus on one's becoming an independent individual will increasingly prefer an identity style characterized by reliance on the opinions of parents and authority figures (i.e., a normative identity style). Such an identity style can help make sure that alternative values and lifestyles remain out of sight, making it easier to shut oneself off from information that may threaten pre-existing (often authoritarian) goals and values.

Reciprocal Effects

Based on recent views on identity development that stress its dynamic process, with explorations possibly resulting in commitments that, in turn, can be revised and abandoned in the light of new information (e.g., Luyckx et al., 2005), a reciprocal model could be expected to describe reality best. In line with this, and testifying to the vital importance of incorporating reciprocal dynamics in any model on identity development, a continuous interaction between the goals people pursue and the way in which people explore different identity alternatives was found. In general, both effects from the identity styles to the goal pursuits and vice versa were found. Most noteworthy in this respect, however, is the reciprocal interaction between conservation goals and the normative identity styles. Apparently, valuing conservation goals results in a relative increase in one's preference for a normative identity style, whereas, at the same time, a normative style is likely to result in a relative increase in one's preference for conservation goals. Thus, conservation goals and a normative identity style seem to form a mutually reinforcing constellation of goals and ways of processing identity-relevant information that serve one another and that work well together in making sure alternative values and lifestyles remain out of sight, making it easier for people to shut themselves off from information that may threaten preexisting (often authoritarian) goals and values.

Toward a Temporal Sequence

When looking at the results in more detail, an interesting pattern of findings can be seen. Apart from the reciprocal relation between conservation goals and the normative identity style, differential process and content effects were found. More specifically, there were process effects from the informational and diffuse-avoidant identity

styles on openness to change versus conservation goals but not on intrinsic versus extrinsic goals. Further, there were content effects of intrinsic versus extrinsic goals but not of openness to change versus conservation goals on the informational and diffuse-avoidant identity styles. In other words, differences in the informational and diffuse-avoidant styles seem to be predictive of differences in an openness to change versus conservation goal pursuit, but they seem to follow from differences in an intrinsic versus extrinsic goal pursuit. In addition, differences in intrinsic versus extrinsic goals were predicted by differences in the normative identity style. Taken together, these findings suggest that differences in the normative identity style earlier on in life contain the seeds of how people's identity will develop: people with a highly normative identity style seem prone to develop a higher preference for extrinsic goals, which, in turn, predicts a decreased informational style and an increased diffuse-avoidant identity style, both of which predict an increased conservation goal pursuit, which, in turn, increases reliance upon a normative identity style.

Limitations and Future Directions

First, although the present study contains a number of strengths, an important limitation is that all measures in the present study are adolescent self-reports. This increases the likelihood of shared method variance. Although self-reports may be the most valid means to assess adolescents' own identity development, future research might want to use other indices as well. Adolescent perceptions of their own identity style, for instance, might be distorted and inaccurate. As an alternative source of information, future research might include parent, teacher, or even peer reports to get a more detailed view on adolescent functioning. A more detailed and complete view on adolescent functioning in general and adolescent identity development in particular might also be obtained by using alternative methods such as interviews. These would allow researchers to move beyond the goal domain into the domain of the narratives adolescents construct about themselves. In this respect, McAdams (1995, 1996) postulates that goals and self-narratives are distinct "tiers" of personality that cannot be reduced to one another and that should be considered simultaneously to get a more complete picture of what a person is like. In line with this idea, research has already shown that

goals and self-narratives yield independent effects on subjective well-being (Sheldon & Hoon, 2007).

Second, consistent with the way we framed the current study in the introduction, the extent to which values impact upon identity styles (and vice versa) might depend on cultural conditions. More specifically, consistent with the idea that the need to personally resolve identity crises and achieve an individualized sense of identity has come to the fore, especially in cultures in which the legitimacy of religious and institutional values has been thoroughly questioned (e.g., Erikson, 1968), it seems important to investigate whether the extent to which values impact upon identity styles (and vice versa) can be predicted from cultural indicators signifying the impact of religious and institutional values in different societies. Cross-cultural research might shed light on this issue.

Third, future research needs to shed light on why and how identity styles and goal pursuits influence one another. In this respect, Soenens and Vansteenkiste (2011) have recently speculated about a possible underlying mediation mechanism. In particular, they discussed the possible role of the satisfaction of the basic psychological needs for autonomy, competence, and relatedness. Following self-determination theory (Deci & Ryan, 2000), they argue that intrinsic goal pursuits facilitate need satisfaction, which, in turn, would provide the essential energy to engage in high-quality identity exploration (i.e., an informational identity style). In contrast, people with an extrinsic goal focus would have fewer need-satisfying experiences and, as a consequence, would lack the vitality needed to engage in an energy-consuming and sophisticated style of identity exploration such as the informational identity style. Instead, their lack of energy would lead them to submissively accept expectations from significant others (i.e., a normative style) or orient themselves to situational cues (i.e., a diffuse-avoidant style). At the same time, different identity styles may provide different opportunities for need satisfaction, which, in turn, may elicit different goal pursuits. In line with this, people using an informational identity style were found to be more likely to experience need satisfaction (Luyckx, Vansteenkiste, Goossens, & Duriez, 2009), presumably because they were more likely to experience their actions as volitional. And although self-determination theory holds that the pursuit of intrinsic goals facilitates need satisfaction, it also holds that need satisfaction is a prerequisite for an intrinsic goal pursuit (Kasser, 2002). In other

words, it can also be argued that people will only have the energy to self-actualize and, hence, pursue intrinsic goals, when their basic needs are fulfilled (Duriez & Klimstra, 2011). People experiencing need thwarting would lack the energy to pursue intrinsic goals (which might be considered a luxury rather than a necessity) and would start pursuing extrinsic goals (which might be considered a necessity) in an attempt to compensate for their thwarted needs. For instance, people who are frustrated in their relatedness need might pursue attractive looks, hoping that this will help arouse the interest of a potential partner. In line with these ideas, future research might zoom in on the possible mediational role of basic psychological need satisfaction.

Fourth, given the existence of reciprocal effects between goal pursuits and identity styles, future research might try to identify external variables that might determine both the goals people will pursue and the identity style they will adopt. One possible direction in which to look for such variables might be the family context. Given that the present study indicates that the identity formation process and how this is dealt with by a specific individual may be at least codetermined by preexisting values, and given that identity styles might partly be shaped and adopted by modeling and might meet encouragement or discouragement of parents and other socialization agents, research and theorizing on identity development might do well to not only exclusively focus on the role of the individual but to focus on the role of parents and other socialization agents as well. In this respect, recent studies have stressed not only the importance of the style that parents and teachers and other socialization agents use in interacting with children, but also the importance of the goals that are promoted within this interaction (Duriez, Soenens, et al., 2007; Vansteenkiste, Lens, & Deci, 2006). Apart from socialization potentially having an effect on both goal pursuits and identity styles, both goal pursuits and identity styles might be codetermined by cultural conditions. More specifically, cultural factors might determine not only the extent to which values impact upon identity styles and vice versa (see above), but they might also determine the availability of goals and styles as well as the social desirability of pursuing certain goals or developing a certain identity style. In this respect, the literature stressed the importance of differences in self-construal or in whether the self is seen as independent or interdependent (e.g., Downie, Koestner, Horberg, & Haga, 2006;

Markus & Kitayama, 1991). Cross-cultural studies might examine the influence of such cultural factors on identity development at large in more depth. In addition, given that genetic factors (e.g., intellectual capacities and other cognitive abilities) might also predispose people to a preference for certain goals or a preference for a certain identity style, future research might examine the role of such factors in more depth as well.

CONCLUSION

The present study is the first to address the reciprocal impact of goal pursuits and identity styles, and, hence, among the first to explicitly show that goals and values (i.e., specific examples of identity content) and ways of processing identity-relevant information (i.e., the identity formation process) mutually impact upon each other. The findings of this study attest to the notion that processes involved in identity exploration and the content of individuals' commitments are dynamically linked across time. As such, they are consistent with recent accounts of identity development stressing that exploration can result in commitments, but that commitments can subsequently be revised in light of new information (e.g., Luyckx et al., 2005).

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