

# Developmental Typologies of Identity Formation and Adjustment in Female Emerging Adults: A Latent Class Growth Analysis Approach

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The developmental interplay between identity and adjustment was examined in a seven-wave longitudinal study of 428 European female college students ( $M_{\text{age}} = 18.8$  years) over a period of 3 years, with semi-annual measurement waves each year. Latent Class Growth Analysis (LCGA) was used to identify developmental typologies of both identity formation (i.e., dimensions of commitment and exploration) and adjustment (i.e., depres-

sive symptoms and self-esteem). Four trajectory classes emerged for identity, three of which had been suggested earlier in the literature (Josselson, 1996): Pathmakers, Guardians, and Searchers. The fourth trajectory class was labeled Consolidators and consisted of individuals characterized by a strong focus on strengthening their current identity commitments, at the expense of a thorough exploration of alternative options. Three trajectory classes were identified for adjustment: Optimal Adjustment, Moderate Adjustment, and Stable Maladjustment. Each of the four identity trajectory classes was associated with a specific profile of adjustment, with the Searchers showing the poorest profile and the Pathmakers and Consolidators the most positive profile. Practical implications and suggestions for future research are outlined.

Erikson (1968) theorized that one of the primary goals of adolescence is to develop a coherent identity, with identity synthesis and identity confusion proposed as the polar outcomes of this psychosocial task. He highlighted the central role of identity development in facilitating personal adjustment and well-being. Individuals for whom identity synthesis predominates over identity confusion are likely to be better adjusted than are those for whom the opposite is true. Although Erikson conceptualized the bulk of identity work as occurring in adolescence, social-structural changes in many Western nations have resulted in the delaying of psychosocial maturity until the late teens and early twenties—a period now called emerging adulthood (Arnett, 2000).

For those emerging adults who attend university, the institutional environment serves as a psychosocial moratorium in which the process of identity formation can be prolonged (Montgomery & Côté, 2003). Young people attending university vary, however, in the extent to which they capitalize on the opportunity for such an extended psychosocial moratorium. This moratorium can help young people to develop a sense of identity, but it can also induce confusion in young people for whom the seemingly limitless possibilities are intimidating and disequilibrating (Schwartz, Côté, & Arnett, 2005). This widening of opportunities for success and failure in identity resolution may create added diversity in identity types which, in turn, may contribute to the course and redirection of mental health trajectories (Schulenberg, Sameroff, & Cicchetti, 2004). Consequently, extending earlier identity work using data collected at only one point in time, the present study used a longitudinal approach to investigate how identity types or trajectory classes relate to adjustment trajectory classes in emerging adulthood. Before we proceed to the identity types described in the literature, we first outline the identity dimensions used in this study.

## Selecting the Dimensions of Identity Formation in Emerging Adulthood

For more than 40 years, individual differences in identity formation have been conceptualized along two dimensions: exploration and commitment (Marcia, 1966). Exploration refers to the active questioning and consideration of various alternatives. Commitment pertains to choosing from among the alternatives one has explored. Luyckx, Goossens, Soenens, and Beyers (2006) have empirically delineated both exploration and commitment into two dimensions apiece: exploration in breadth and exploration in depth on the one hand, and commitment making and identification with commitment on the other hand. Conceptualizing identity in terms of four dimensions provides a broader and more dynamic account of the identity development process (Luyckx, Goossens, & Soenens, 2006). All four of these dimensions appear to be necessary to accurately define classes of identity development (Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste, 2005).

Exploration is best treated as a multidimensional, rather than singular, dimension. Marcia (1966) defined exploration as the degree to which adolescents search for alternatives with respect to their goals, values, and convictions before making commitments—what we are calling exploration in breadth. In addition, Bosma (1985) and Meeus (1996) have argued that exploration may also entail an in-depth evaluation of one's current commitments and choices—what we are calling exploration in depth. Exploration in depth accompanies current commitments and implies that identity formation is an ongoing evaluative process.

Similarly, commitment should be treated as a multidimensional process. Commitment, as defined in Marcia's (1966) paradigm, refers to the degree to which adolescents have made choices about important identity-relevant issues. We refer to this dimension as commitment making. Bosma (1985) has argued that, apart from the degree to which one has made identity commitments, the degree to which adolescents identify with and feel certain about their choices is also an important component of identity formation. We refer to this dimension as identification with commitment. Thus, the making of identity-relevant choices is important in the cycle of identity formation, but it is not an endpoint (Grotevant, 1987).

## Types of Identity Formation and Their Relationship to Adjustment

Young people's patterns of scores on the two or four dimensions as determined at a single point in time are often used to derive typologies of

identity. Such typologies are clear instances of a person-centered approach, because individuals are grouped together based on similarities in the configuration of scores on the underlying dimensions. Identity formation and adjustment are considered to be parallel and mutually influential processes in late adolescence and emerging adulthood (Grotevant, 1987; Schwartz, 2005). The different types of identity represented in those classificatory schemes are each related in a unique way to psychological adjustment.

Marcia (1966) crossed the classical dimensions of exploration and commitment to obtain four identity types or statuses: identity achievement (commitment following exploration), foreclosure (commitment without much prior exploration), moratorium (ongoing exploration with little commitment), and diffusion (no commitment and little systematic exploration). Of the many facets of adjustment that differentiate the four statuses, self-esteem and depressed mood allow for clear discrimination among the types. Achieved adolescents report the highest self-esteem and lowest depression. Moratorium adolescents generally have lower self-esteem and show high levels of depressed mood and anxiety because of their continuing exploration (Berman, Weems, & Stickle, 2006). Foreclosed adolescents are somewhat lower than achieved adolescents in self-esteem, but they show few symptoms of depression. Finally, Diffused adolescents score low on self-esteem and high on measures of depressed mood (Kroger, 2003; Marcia, 1993). Taken together, then, self-esteem and depressed mood suggest a natural ordering of the four identity statuses in terms of adjustment. Achieved adolescents have the most positive profile of adjustment and Diffused adolescents the most negative profile, with Moratorium and Foreclosure adolescents scoring in between (Côté & Schwartz, 2002).

Using baseline data from the present longitudinal study, Luyckx et al. (2005) used cluster analysis to empirically derive identity statuses based on the four identity dimensions mentioned earlier. They found statuses similar to those described by Marcia (1966). These statuses or types were associated with adjustment, well-being, and distress in ways that resembled the associations obtained with the original typology developed by Marcia and that corroborated findings obtained with the four identity dimensions described above (Luyckx, Goossens, Soenens, et al., 2006).

Some authors have begun to move beyond cross-sectional studies and have claimed that the identity status to which young people were assigned in college determines the way in which they would deal with challenges throughout adulthood and their associated pattern of adjustment. Josselson (1996) described four pathways of identity development into adulthood for young women and used new labels to refer to each of those "dynamic" types. At age 33, Pathmakers (i.e., achievement) tended to take

on new challenges, whereas Guardians (i.e., foreclosure) continued to remain firm in the commitments they had adopted from significant others. Searchers (i.e., moratorium) continued to experience substantial ambivalence and self-doubt, and finally, Drifters (i.e., diffusion) were still unable to find personal and enduring meaning in their life. As a result, the adjustment differences among the four classes, as observed in college, were still largely intact. However, at age 43, individuals in most identity classes had increased in self-awareness, which tended to reduce their differences in adjustment. Only the Drifters continued to stand out from the other groups.

### **Latent Class Growth Analysis (LCGA): A Method for Identifying Developmental Trajectory Classes**

In the present study, we expanded on Josselson's (1996) longitudinal qualitative work by using quantitative techniques uniquely suited for modeling developmental change. Specifically, we used a combined variable-centered and person-centered approach that focuses on inter-individual differences in intra-individual change and thus allows for heterogeneity in developmental trajectories (Muthén & Muthén, 2000). Such an approach fully capitalizes on the developmental nature of the data. Trajectory classes are empirically defined based upon the longitudinal trends—in terms of initial level and rate of change—present in the data. In other words, we did not impose a theoretically derived structure that may or may not fit the data, because such a strategy threatens the statistical validity of the results (Nagin, 2005).

From the statistical techniques currently available for this purpose, we selected LCGA (Nagin, 1999, 2005), a group-based semi-parametric approach based on finite mixture modeling (Muthén & Muthén, 2000). LCGA summarizes longitudinal data by modeling individual-level variability in developmental trajectories through a small number of classes that are defined by unique sizes and shapes (Nagin, 1999). Trajectory classes are operationalized as collections of individuals who follow approximately the same developmental trajectory. This technique, as well as related growth mixture modeling techniques, has found widespread usage in research on aggression, alcohol use, and drug use (e.g., Nagin & Tremblay, 1999; Windle & Wiesner, 2004). Such techniques, however, have not yet been used in the field of identity development. LCGA was applied on the four identity dimensions simultaneously, because the interplay among these dimensions is taken to represent the core and essence of identity development (Luyckx, Goossens, Soenens, et al., 2006).

In short, the present study was designed to investigate Marcia's (1966) identity statuses from an explicitly quantitative and longitudinal perspective, thereby extending Josselson's (1996) qualitative longitudinal work. Further, we examined how trajectory classes defined by core dimensions of identity formation would relate to trajectory classes based on indices of adjustment and well-being. As such, we sought to provide insight into the linkage between identity development and well-being. Our longitudinal design thereby allowed us to extend findings from previous cross-sectional studies that were not equipped to test this developmental linkage (cf. Schwartz, 2005).

## Objectives and Hypotheses

*Developmental trajectory classes for identity.* Because the developmental trajectory classes were empirically defined and not theoretically imposed, it was possible that several identity classes described in the literature on intra-status differentiations could emerge (e.g., Archer & Waterman, 1990). We hypothesized that at least the four primary identity types identified by Marcia (1966) and Josselson (1996) would emerge.

Pathmakers are thought to make decisions after thoroughly examining alternatives. They are likely to identify themselves to a high degree with their commitments and to explore these commitments in depth. In developmental terms, Pathmakers should evidence initially high scores on all four identity dimensions, and increases on these dimensions over time should be observed.

Guardians make commitments in the relative absence of exploration in breadth. Compared with Pathmakers, they explore their current commitments and identify themselves to a lesser degree with these commitments. As a consequence, they would evidence relatively high commitment making and little exploration at the onset of university. Whereas commitment making would increase over time, both types of exploration would remain rather low. Identification with commitment would be relatively high but lower than that observed in Pathmakers, and only limited change would occur over time.

Searchers are thought to be actively exploring alternatives and struggling to make choices without really resolving the challenges presented (Côté & Levine, 2002). This trajectory would focus on exploration in breadth, perhaps to the exclusion of the other dimensions. In developmental terms, these other dimensions would be initially low to moderate and would remain so or even decrease over time. Exploration in breadth, however, would be initially high and increase over time.

Finally, Drifters are characterized by lack of commitments coupled with little exploration. As a consequence, they are generally considered the least developmentally mature in terms of their identity (cf. Schwartz et al., 2005). All four identity dimensions would be relatively low initially, and no substantial changes would occur over time.

*Developmental trajectory classes for adjustment.* In exploring the developmental functions of identity vis-à-vis adjustment in emerging adulthood, we examined the associations of these core identity dimensions with both self-esteem and depressive symptoms. In this way, we would be able to capture both well-being and distress (Wilkinson & Walford, 1998) and concentrate on two key facets of adjustment referenced in the identity status literature. Schulenberg, Bryant, and O'Malley (2004) identified—on a theoretical basis using a set of cut-off scores—four adjustment trajectory classes in a representative sample of American emerging adults: steady-high well-being, high-decreasing well-being, low-increasing well-being, and steady-low well-being. We hypothesized that similar adjustment trajectory classes would also emerge in the present study. These classes will be called Optimal Adjustment, Decreasing Adjustment, Increasing Adjustment, and Stable Maladjustment, respectively.

The Optimal Adjustment class was hypothesized to initially score the lowest on depressive symptoms and to remain so during the course of the study. They initially would score the highest on self-esteem and would continue to do so over time. The Stable Maladjustment class would initially score the highest on depressive symptoms and the lowest on self-esteem. Again, no substantial changes would occur over time. The Increasing Adjustment class would score moderate to high on depressive symptoms and relatively low to moderate on self-esteem. Depressive symptoms would significantly decrease over time, and self-esteem would increase over time. Finally, the Decreasing Adjustment class would score relatively low to moderate on depressive symptoms and relatively moderate to high on self-esteem. Depressive symptoms would increase, and self-esteem would decrease, over time.

*Associations between the two sets of developmental trajectory classes.* Based on the identity status literature (Kroger, 2003; Marcia, 1993) and Josselson's (1996) findings, we hypothesized that Pathmakers would show the most optimal profile of adjustment, followed by Guardians, Searchers, and Drifters, in that order. This hypothesis implies that (a) most of the Pathmakers were expected to be found in the Optimal Adjustment class, whereas (b) most of the Guardians would fall in the Increasing Adjustment class; (c) Searchers would overlap most

with Stable Maladjustment; and (d) Drifters would overlap most with Decreasing Adjustment (Schwartz et al., 2005).

## METHOD

### Participants and Missing Data

Longitudinal data were collected at a Belgian university. This university mainly attracts Caucasian students from middle-class backgrounds. Assessments continued on a semi-annual basis for 3 years. The identity dimensions were assessed seven times, whereas the adjustment indices were assessed four times (i.e., at times 1, 3, 5, and 7). At Time 1, all 565 participants (482 or 85.3% of whom were women) were freshmen from the Faculty of Psychology and Educational Sciences. Because the sample was so overwhelmingly female, we dropped the small number of men from the sample and focused on the women ( $n = 482$ ). This is consistent with the work of Josselson (1996), who has focused exclusively on women. The mean participant age at Time 1 was 18 years and 8 months ( $SD = 7.6$  months).

To minimize the bias associated with attrition and missing data, we used the Full Information Maximum Likelihood approach, implemented in Mplus (version 4.0; Muthén & Muthén, 2002), to estimate missing data (Little & Rubin, 1987; Schafer & Graham, 2002). To ensure that we obtained reliable and valid individual estimates of linear and quadratic slopes, only women who provided data for at least three time points were included in the analyses (cf. Shaw, Gilliom, Ingoldsby, & Nagin, 2003). This resulted in a final sample of 428 women (75.8% of the original sample), of which 264 had complete data on all variables at all waves and the remaining 164 had missing data at one or more time points. Overall, 11.9% of data were missing. Participants with and without complete data were compared using Little's (1988) Missing Completely At Random test. A nonsignificant test statistic suggests that missing values could be reliably estimated. Indeed, we obtained a nonsignificant  $\chi^2$  value for this test,  $\chi^2(620) = 668.62$ ,  $ns$ . Further, Mplus provides a covariance coverage matrix that gives the proportion of available observations for each variable and for each pair of variables. The minimum coverage necessary for models to converge is .10 (Muthén & Muthén, 2000). In our data, coverage ranged from .69 to .97, which is more than adequate for reliable estimation.

### Measures

Participants responded to each item using a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), unless indicated otherwise.



***Commitment making and exploration in breadth.*** We used the Dutch version (Luyckx, Goossens, Beyers, et al., 2006) of the Ego Identity Process Questionnaire (Balistreri, Busch-Rossnagel, & Geisinger, 1995). Sample items are "I have definitely decided on the occupation I want to pursue" (commitment making; 15 items), and "I have tried to learn about different occupational fields to find the best one for me" (exploration in breadth; 13 items). Cronbach's  $\alpha$ 's for commitment making at Times 1–7 ranged from .72 to .82 ( $M = .78$ ). Cronbach's  $\alpha$ 's for exploration in breadth at Times 1–7 ranged from .74 to .81 ( $M = .78$ ).

***Identification with commitment and exploration in depth.*** We used the Utrecht-Groningen Identity Development Scale (Meeus, 1996), a 26-item measure originally developed for use with Dutch-speaking adolescents. Sample items are "My education gives me certainty in life" (identification with commitment; 16 items), and "I think a lot about my education" (exploration in depth; 10 items). Cronbach's  $\alpha$ 's for identification with commitment at Times 1–7 ranged from .82 to .86 ( $M = .84$ ). Cronbach's  $\alpha$ s for exploration in depth at Times 1–7 ranged from .68 to .78 ( $M = .72$ ).

***Self-esteem.*** Self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). This scale contains 10 items scored on a four-point Likert-type rating scale, ranging from 1 (Does not apply to me at all) to 4 (Applies to me very well). This questionnaire was translated into Dutch by Van der Linden, Dijkman, and Roeders (1983). A sample item is "I feel that I have a number of good qualities." Cronbach's  $\alpha$ 's at Times 1, 3, 5, and 7 ranged from .90 to .92 ( $M = .91$ ).

***Depressive symptoms.*** Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (Radloff, 1977). A brief 12-item version was developed by Roberts and Sobhan (1992) and was translated into Dutch by Hooge, Decaluwé, and Goossens (2000). Again, items are responded to using a four-point Likert-type rating scale, ranging from 1 (Seldom) to 4 (Most of the time or always). Each item asks participants how often they had experienced symptoms of depression during the week before assessment. A sample item is "During the last week, I felt depressed." Cronbach's  $\alpha$ 's at Times 1, 3, 5, and 7 ranged from .87 to .89 ( $M = .88$ ).

## RESULTS

First, we investigated rank-order stabilities and mean-level changes in the different variables. Second, the within-time correlations among identity

and adjustment were examined at the different measurement waves, and they proved to be temporally stable. Third, trajectory classes for identity and for adjustment were defined, resulting in a solution with four identity classes (three of which had been hypothesized to emerge) and a solution with three adjustment classes. Finally, we investigated how the classes of identity overlapped with the classes for adjustment and found that most of the Pathmakers and a subgroup of the Guardians (referred to as the Consolidators) were characterized by the most favorable adjustment patterns, whereas approximately one third of the Searchers were characterized by patterns of maladjustment.

### Rank-Order Stabilities

The 6-month rank-order stability coefficients (all  $p$ 's < .001) for commitment making, with  $r$ 's ranging from .67 to .77 ( $M = .72$ ), exploration in breadth, with  $r$ 's ranging from .72 to .77 ( $M = .74$ ), identification with commitment, with  $r$ 's ranging from .50 to .68 ( $M = .60$ ), and exploration in depth, with  $r$ 's ranging from .51 to .69 ( $M = .59$ ), were in line with previous papers using a limited number of measurement waves from the current project (Luyckx, Goossens, & Soenens, 2006; Luyckx, Soenens, & Goossens, 2006). With respect to adjustment, the 1-year stability for self-esteem, with  $r$ 's ranging from .74 to .80 ( $M = .77$ ), was substantially higher than that for depressive symptoms, with  $r$ 's ranging from .37 to .47 ( $M = .41$ ).

**Mean-level changes.** A series of univariate latent growth curve (LGC) models including intercept, linear slope, and quadratic slope terms was estimated to capture mean-level changes. The first pattern coefficient on the slope factor (i.e., the path from the slope to the indicator for Time 1) was fixed to 0 so that the intercept would represent the initial level of the equation. Given the equally spaced measurement intervals in the present study, the subsequent linear slope pattern coefficients for the identity measures were fixed at 1, 2, 3, 4, 5, and 6 for Times 2 through 7, respectively. The subsequent linear slope pattern coefficients for the adjustment measures were fixed at 2, 4, and 6 for Times 3, 5, and 7, respectively.

As demonstrated in Table 1, all univariate LGC models provided an acceptable fit to the data, with values for the comparative fit index ranging from .96 to .99 and values for the standardized root mean square residual ranging from .03 to .08. Both commitment making and exploration in depth demonstrated linear increases over time. Exploration in breadth showed a linear increase over time combined with a negative quadratic slope. This means that the linear increase leveled off during the course of

TABLE 1  
Univariate Latent Growth Curve Models for Identity and Adjustment

<i>Dimension</i>	<i>df</i>	$\chi^2$	<i>CFI</i>	<i>SRMR</i>	<i>M</i>	$\Delta$	<i>M</i>	$\Delta$	<i>M</i>	$\Delta$
					<i>Intercept</i>	<i>Intercept</i>	<i>Linear Slope</i>	<i>Linear Slope</i>	<i>Quadratic Slope</i>	<i>Quadratic Slope</i>
Commitment making	19	32.96*	.99	.04	3.16***	.12***	.03***	.01***	<.01	<.01
Exploration in breadth	19	27.99	.99	.03	3.22***	.18***	.06***	<.01	-.01***	<.01
Identification with commitment	19	67.48***	.96	.07	3.52***	.12***	-.04***	.02***	.01***	.01***
Exploration in depth	19	50.66***	.98	.06	3.61***	.10***	.02*	.01***	<.01	<.01
Depressive symptoms	1	3.29	.99	.07	1.78***	.10*	-.03*	<.01	<.01	<.01
Self-esteem	1	5.10*	.99	.08	3.01***	.23***	.06***	<.01	-.01*	<.01

*Note.*  $N = 428$ ; CFI, comparative fit index; SRMR, standardized root mean square residual;  $M$ , mean;  $\Delta$ , variance. The possible range for the mean intercepts for the identity dimensions is 1–5; the possible range for the mean intercepts for the adjustment components is 1–4.

\* $p < .05$ ; \*\*\* $p < .001$ .

the study and that the scores showed a downward trend (or inverted u-curve) towards the end of the study. Identification with commitment showed a linear decrease over time coupled with a positive quadratic slope. This means that the linear decrease leveled off during the course of the study and that the scores showed an upward trend (or u-curve) towards the end of the study. Finally, depressive symptoms showed a linear decrease over time, whereas self-esteem showed a linear increase combined with a negative quadratic slope.

### Within-Time Correlational Analyses

All correlations discussed are significant at  $p < .001$ , except as indicated otherwise. At Times 1, 3, 5, and 7, commitment making was negatively related to depressive symptoms, with  $r$ s ranging from  $-.26$  to  $-.35$  ( $M = -.32$ ), and positively to self-esteem, with  $r$ s ranging from  $.25$  to  $.39$  ( $M = .34$ ). Exploration in breadth was positively related to depressive symptoms, with  $r$ s ranging from  $.20$  to  $.29$  ( $M = .24$ ), and negatively to self-esteem, with  $r$ s ranging from  $-.11$  ( $p < .05$ ) to  $-.23$  ( $M = -.16$ ).

Identification with commitment was negatively related to depressive symptoms, with  $r$ s ranging from  $-.27$  to  $-.39$  ( $M = .32$ ), and positively to self-esteem, with  $r$ s ranging from  $.33$  to  $.46$  ( $M = .39$ ). Finally, all correlations between exploration in depth and adjustment were nonsignificant, with  $r$ s ranging from  $-.05$  to  $.09$ ,  $p > .05$ , except for a small negative correlation with depressive symptoms at Time 5 ( $r = -.14$ ;  $p < .01$ ). Comparing a model with these correlations free to vary across time against a model with these correlations constrained equal across time indicated that the associations among identity and adjustment were not significantly different across time,  $\Delta\chi^2(16) = 11.68$ ,  $p = .77$ .

## LCGA

Combined variable- and person-centered analyses proceeded in two phases (Shaw et al., 2003). In Phase 1, LCGA was applied to determine (i.e., Phase 1a) and describe (i.e., Phase 1b) trajectory classes. In Phase 2, we estimated the overlap between the classes for both identity and adjustment (Windle & Wiesner, 2004).

*Phase 1a: Determining the trajectory classes.* Two sets of LCGAs were performed on all four identity dimensions simultaneously and on both adjustment dimensions simultaneously (cf. Hix-Small, Duncan, Duncan, & Okut, 2004). Several criteria were used to decide on the number of latent classes (Muthén & Muthén, 2000; Nagin, 2005).

First, the Bayesian Information Criterion (BIC) statistic for a solution with  $k$  classes should be lower than for a solution with  $k - 1$  classes, suggesting that adding additional classes improves model fit. Second, classification quality was assessed by entropy ( $E$ ), a standardized summary measure of the classification accuracy of placing individuals into trajectory classes based upon the posterior probabilities of classification. Entropy ranges from  $.00$  to  $1.00$ , with higher values indicating more accurate classification (Hix-Small et al., 2004). Third, we utilized the bootstrap Lo, Mendell, and Rubin (2001) test (BLRT; Nylund, Asparouhov, & Muthén, 2007) which compares the improvement in fit between neighboring class solutions (i.e., comparing the  $k - 1$  and  $k$ -class solution). The BLRT provides a  $p$ -value that can be used to determine if there is a statistically significant improvement in fit through the inclusion of an additional class. Fourth, we evaluated the substantive usefulness of the latent classes (Muthén, 2004; Nagin, 2005). If a solution with  $k$  classes were to emerge in which certain classes are merely slight variations on a common theme and, hence, do not have differential substantive meanings,

TABLE 2  
Results of Semi-Parametric Group-Based Modeling

Solution	BIC	Entropy	Trajectory Group Prevalence (%)				
			1	2	3	4	5
Identity trajectory models							
2-class	12,092.45	.90	58	42			
3-class	11,185.87	.90	34	34	32		
<b>4-class</b>	<b>10,632.15</b>	<b>.90</b>	<b>29</b>	<b>20</b>	<b>28</b>	<b>23</b>	
5-class	10,303.07	.91	15	16	35	11	23
Adjustment trajectory models							
2-class	3,843.63	.89	29	71			
<b>3-class</b>	<b>3,514.73</b>	<b>.87</b>	<b>13</b>	<b>46</b>	<b>41</b>		
4-class	3,401.89	.84	7	32	40	21	
5-class	3,320.78	.85	32	1	9	37	21

Note.  $N = 428$ . BIC, Bayesian Information Criterion. The solutions in bold were selected.

the more parsimonious solution with  $k - 1$  classes is chosen. Finally, all classes had to represent more than 1% of the sample (Hill, White, Chung, Hawkins, & Catalano, 2000).

Two sets of multivariate nonlinear models (i.e., including intercept, linear slope, and quadratic slope; Muthén, 2004) with two through five classes were estimated (a) for the identity dimensions and (b) for the adjustment indices. Table 2 presents an overview of the selection criteria for all solutions estimated. For identity, in the five-class solution, some classes were variations on a single theme, and, hence, the surplus value of selecting five rather than four classes appeared to be rather limited. The more parsimonious four-class solution had a lower BIC value ( $BIC = 10,632.15$ ) than the three-class solution ( $BIC = 11,185.87$ ) and an adequate value for entropy ( $E = .90$ ). Further, the BLRT (at  $p < .001$ ) favored this solution over the three-class solution.

For adjustment, a multivariate three-class solution was selected. The five-class solution included one class representing only 1% of the sample. In the four-class solution, some classes were variations on a single theme, and, hence, the surplus-value of selecting four rather than three classes appeared to be rather limited. As a result, the more parsimonious three-class solution was selected. This three-class solution had a lower BIC value ( $BIC = 3,514.73$ ) than did the two-class solution ( $BIC = 3,843.63$ ) and an adequate value for entropy ( $E = .87$ ). The BLRT (at  $p < .001$ ) also favored this solution over the two-class solution. Individuals were assigned to the class with the largest posterior probability estimate. The average posterior

class membership probabilities ranged from .92 to .96 for the four identity classes, and from .93 to .95 for the three adjustment classes. These values indicate excellent classification accuracy (Nagin, 1999).

*Phase 1b: Describing the trajectory classes.* Table 3 provides the estimates of mean intercepts, linear slopes, and quadratic slopes for all

TABLE 3  
Parameter Estimates of Identity Trajectory Classes and Adjustment Trajectory Classes

<i>Parameter Estimates</i>	<i>Identity Trajectory Class</i>			
	<i>Searchers</i>	<i>Guardians</i>	<i>Pathmakers</i>	<i>Consolidators</i>
<i>Commitment making</i>				
Mean intercept	2.75***	3.14***	3.27***	3.50***
Mean linear slope	-.02	<.01	.06**	.08***
Mean quadratic slope	.01*	<.01	<.01	-.01*
<i>Exploration in breadth</i>				
Mean intercept	3.59***	3.09***	3.51***	2.73***
Mean linear slope	.08**	.05*	.07***	.02
Mean quadratic slope	-.01**	<.01	-.01**	<.01
<i>Identification with commitment</i>				
Mean intercept	3.26***	3.37***	3.74***	3.68***
Mean linear slope	-.08*	-.03	-.05	<.01
Mean quadratic slope	.01*	.01	.01	<.01
<i>Exploration in depth</i>				
Mean intercept	3.54***	3.46***	3.80***	3.62***
Mean linear slope	.02	<.01	.01	.03
Mean quadratic slope	<.01	<.01	<.01	<.01
	<i>Adjustment Trajectory Class</i>			
	<i>Moderate Adjustment</i>	<i>Optimal Adjustment</i>	<i>Stable Maladjustment</i>	
<i>Depressive symptoms</i>				
Mean intercept	1.86***	1.51***	2.37***	
Mean linear slope	-.05*	-.03	.03	
Mean quadratic slope	.01	<.01	-.01	
<i>Self-esteem</i>				
Mean intercept	2.86***	3.43***	2.17***	
Mean linear Slope	.05**	.09***	<.01	
Mean quadratic slope	<.01	-.01**	<.01	

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

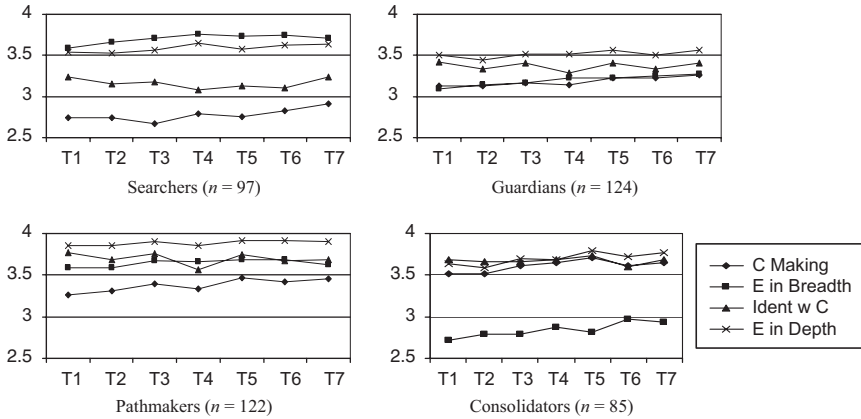


FIGURE 1 Observed mean trends for the four identity dimensions in the four identity trajectory classes. C, commitment; E, exploration.

trajectory classes. Figure 1 provides a graphical presentation of the observed mean trends for the four identity dimensions within each of the four identity trajectory classes. Relatively speaking, that is, compared with the other classes, Class 1 (Searchers) was the lowest on both commitment dimensions and high on exploration in breadth at Time 1. A downward linear trend was observed for identification with commitment, coupled with an upward quadratic trend. Exploration in breadth linearly increased over time, with a negative quadratic trend observed at the last measurement waves. Searchers scored moderately on exploration in depth and did not evidence much change over time. Class 2 (Guardians) was relatively moderate on both commitment dimensions and relatively low on both exploration dimensions at Time 1, with a small upward linear trend over time for exploration in breadth. Class 3 (Pathmakers) was relatively high on all four dimensions at Time 1, with an upward linear trend for commitment making and a strong upward linear trend (with a downward quadratic trend near the end of the study) for exploration in breadth. Finally, Class 4 (Consolidators) scored high on both commitment dimensions, high on exploration in depth, and lowest on exploration in breadth at Time 1. A strong positive linear trend, coupled with a negative quadratic trend, was observed for commitment making.

Similarly, the three adjustment trajectory classes were different in terms of the estimated growth parameters, as shown in Table 3. Figure 2 offers a graphical representation of the observed mean trends for the two adjustment indicators in the three adjustment trajectory classes. Class 1 (Moderate Adjustment) was relatively moderate on both adjustment

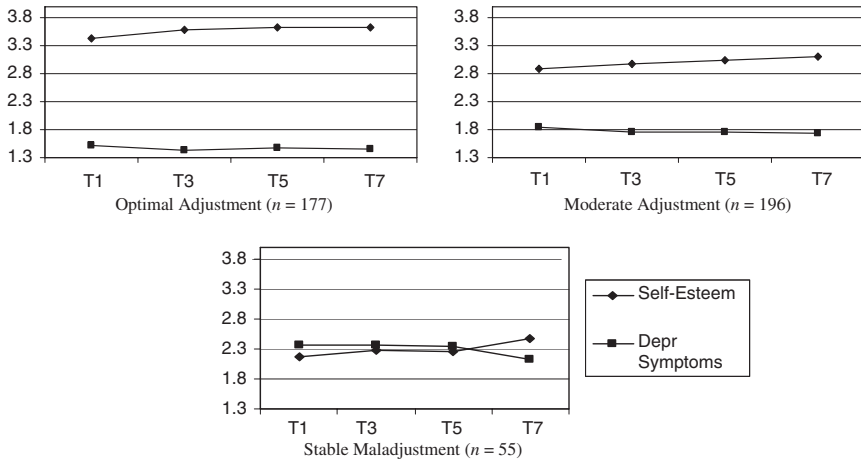


FIGURE 2 Observed mean trends for the two adjustment indicators in the three adjustment trajectory classes. Depr, depressive.

components at Time 1, with an upward linear trend for self-esteem and a downward linear trend for depressive symptoms. Class 2 (Optimal Adjustment) scored lowest on depressive symptoms and highest on self-esteem at Time 1, with a strong upward linear trend and a negative quadratic trend for self-esteem. Finally, Class 3 (Stable Maladjustment) scored highest on depressive symptoms and lowest on self-esteem at Time 1, and no significant trends emerged over time.

**Phase 2: Estimating the overlap among trajectory classes for identity and adjustment.** In the second phase,  $\chi^2$  analyses were performed to estimate the overlap between the identity and the adjustment classes. Because of the high classification accuracy both for identity and for adjustment, these overlap analyses were assumed to be highly precise (Windle & Wiesner, 2004). A strong relationship emerged between the class solutions for identity and for adjustment,  $\chi^2(6) = 77.92$ ,  $p < .001$ ,  $\phi = .43$  (see Table 4). The most striking differences in patterns of association with adjustment were observed between the Searchers on the one hand and the Consolidators and Pathmakers on the other. Whereas 21.6% and 33.0% of the Searchers were classified into the Optimal Adjustment and Stable Maladjustment classes, respectively, 62.4% and 1.2% of the Consolidators and 54.1% and 6.6% of the Pathmakers were classified into these adjustment classes, respectively. The Guardians were situated in between. These expected and differential associations between the four identity trajectory classes and the three adjustment trajectory



TABLE 4  
Cross-Tabulation of the Four Identity Trajectory Classes and the Three Adjustment Trajectory Classes

<i>Adjustment Trajectory Class (n)</i>	<i>Identity Trajectory Class (n)</i>			
	<i>Searchers (97)</i>	<i>Guardians (124)</i>	<i>Pathmakers (122)</i>	<i>Consolidators (85)</i>
Moderate adjustment (196)	45.4	58.9	39.3	36.5
Optimal adjustment (177)	21.6	29.8	54.1	62.4
Stable maladjustment (55)	33.0	11.3	6.6	1.2

*Note.* Cells contain percentages. Values indicate the percentages within identity trajectory classes (i.e., within columns).

classes provide support for the validity of the developmental typology of identity formation proposed by Luyckx, Goossens, and Soenens (2006).

## DISCUSSION

The present study was designed to identify latent trajectory classes representing change in identity formation and change in psychosocial adjustment and to assess the overlap in these classes in a sample of Belgian emerging adult women. Four trajectory classes emerged for identity, and three trajectory classes emerged for adjustment. Three of the identity developmental trajectory classes (i.e., Pathmakers, Guardians, and Searchers) had been hypothesized to emerge based upon previous theoretical and empirical work (e.g., Josselson, 1996; Marcia, 1966). The fourth subgroup, Consolidators, was characterized by the highest initial levels of both commitment dimensions, by strong increases in commitment making over time, and by the lowest exploration in breadth over time.

### Developmental Typologies of Identity and Adjustment

The pattern of scores observed suggests that the Consolidator class represents a developmental subtype of the Guardian class. When we examined the solution with three instead of four identity trajectory classes, no distinct Consolidator trajectory class emerged, and most of the Consolidators were classified as Guardians within the three-class solution. Archer and Waterman (1990) described a certain subcategory of foreclosures—open foreclosure—that, to some extent, resembles the

Consolidators. Open foreclosures are described as a group of adolescents who have committed themselves (i.e., high on commitment making) without demonstrating a current genuine interest in other options (i.e., low on exploration in breadth), but they are characterized by a flexible orientation (cf. high on exploration in depth). However, they appear so secure in their choices (i.e., high on identification with commitment) that they demonstrate virtually no interest in other possible identity options.

The Pathmaker group evidenced all of its hypothesized characteristics, for the dimensions of commitment making and exploration in breadth in particular. Conceptually, however, for the Guardians, scores for both commitment dimensions would have been expected to be somewhat higher than the values observed in this study. These moderate rather than high scores may reflect the fact that a substantial group of the young women who scored high on those dimensions and low on exploration in breadth were assigned to the Consolidator class. Contrary to our hypotheses, no distinct subgroup of Drifters was identified. Previous longitudinal identity research has classified a nonnegligible portion of college students as belonging to the Drifter trajectory class (Meeus, Iedema, Helsen, & Vollebergh, 1999). In these prior studies, however, participants were classified into the four identity statuses at each measurement wave separately, using *a priori* decision rules. In the present longitudinal study, trajectory assignments were made empirically based on longitudinal patterns in identity dimensions, and no expectations were forced onto the data.

Three adjustment developmental trajectory classes emerged. In contrast to Schulenberg et al. (2004), however, no Decreasing Adjustment trajectory class was identified. Further, instead of an Increasing Adjustment trajectory class, we identified a Moderate Adjustment trajectory class (which was nonetheless characterized by a small increasing linear trend for self-esteem and a small decreasing linear trend for depressive symptoms). Although the present study is among the first to empirically identify developmental trajectory classes of identity development and psychological adjustment in emerging adulthood, the fact that we were unable to identify either the Drifter or Decreasing Adjustment trajectory classes suggests that individuals experiencing extreme identity difficulties or distress were likely underrepresented in the current longitudinal sample. Because these difficulties may be most pronounced in ethnic minorities and in individuals from lower socioeconomic brackets (Phillips & Pittman, 2003; Yoder, 2000), further research is warranted using more ethnically and socioeconomically diverse samples (Schwartz, 2005).

### Longitudinal Associations Between Identity and Adjustment

The present results indicated that a certain proportion of the Searchers, in particular, are at risk for following a developmental course characterized by maladjustment and distress. This finding is consistent with past research (cf. Marcia, 1993) linking moratorium with anxiety and depression. Given that identity distress can be associated with other diagnosable psychological problems (Berman, Montgomery, & Kurtines, 2004), this continued exploration may lead to a sense of floundering and procrastination that can adversely affect mental health (Baumeister, Shapiro, & Tice, 1984; Luyckx et al., 2008; Schulenberg et al., 2004). As an illustration, our Searchers evidenced the lowest initial score on both commitment dimensions, and scores for identification with commitment decreased further during the first phases of the study. In fact, whereas both Searchers and Pathmakers scored equally high on exploration in breadth, these classes can be separated in terms of commitment making and identification with commitment. Indeed, commitment is what tends to separate successful from unsuccessful identity development (Schwartz et al., 2005). Similarly, both commitment making and identification with commitment were positively associated with self-esteem and negatively associated with depressive symptoms in the present study. Exploration in breadth, however, was associated with low self-esteem and with greater depressive symptoms. These patterns of associations were stable across the first 3 years of university.

It should be noted that the Searchers overlapped substantially with all three adjustment trajectory classes, indicating that not all Searchers were at risk for experiencing downward trends in well-being. Intense identity searching without forming commitments right away may serve as a route to personal growth for emerging adults (Arnett, 2000). Such individuals may be capitalizing on the freedom and encouragement of exploration that characterizes many university environments (Montgomery & Côté, 2003). On the other hand, it might be hypothesized that those Searchers who overlap significantly with the Stable Maladjustment class are quite similar to Drifters or, at least, vacillate between searching and drifting (Côté & Schwartz, 2002; Luyckx et al., 2008). Future longitudinal research should investigate empirically whether multiple types of Searchers can be distinguished from one another.

These findings suggest that, in applied work with emerging adults, it may be important to attend to the developmental courses of identity, including tracking identity work throughout the university years. It may be important to direct counseling and intervention efforts toward some members of the Searcher class, that is, those for whom the commitments

made do not help to alleviate identity confusion (Schwartz et al., 2005). Helping certain students to enact identity-related commitments may help to break the cycle of distress that accompanies "endless" identity exploration, and thereby may facilitate subjective well-being. Many of these women, however, may simply need the time to experience their moratorium in order to eventually find commitments that they might enact toward the end of or after university.

Both the Pathmaker and Consolidator trajectory classes were characterized by the most favorable adjustment profiles. In contrast to Searchers, both of these classes are characterized by a determined set of commitments of which they feel very certain (i.e., high identification with commitment). Whereas Consolidators tend not to invest strongly in broad-based exploration of identity alternatives, Pathmakers are characterized by a current search for and sorting through of various identity alternatives. Of course, the present findings are limited to the time span under consideration. For example, consolidated commitments may be adaptive for some period of time, but when revision or modification of one's commitments is necessary, the consolidated identity may no longer be functional. To the extent that Consolidators are likely to respond to contextual challenges requiring identity revision, this class may indeed be associated with positive adjustment into adulthood. Future research should determine whether the accompanying trends in adjustment for Consolidators accumulate over time and continue to provide a foundation for optimal development during adulthood.

The present findings may have important implications for other developmental tasks of adolescence and emerging adulthood, such as forming committed love relationships and career development, which have been demonstrated to overlap with and parallel general identity development (e.g., Blustein, Devenis, & Kidney, 1989). In particular, the life-span approach to career development (Super, 1990) has much in common with the ideas proposed in the present article. Super's approach holds that the ability to master career developmental tasks in adolescence and emerging adulthood results in effective functioning and in the ability to address future developmental tasks. More specifically, previous longitudinal research has indicated the usefulness of career identity exploration for job satisfaction and functioning (Jepsen, 2003). This finding is somewhat similar to the present findings for the Pathmaker class. Hence, future research using a combined variable-centered and person-centered approach could be used to determine the extent to which trajectory classes similar to those identified in the present study might also be identified with respect to career developmental issues, and if these classes relate similarly to indices of effective functioning, well-being, and distress.

### Limitations and Suggestions for Further Research

The present findings should be considered in light of several limitations. First, data were gathered only through self-report questionnaires. Although questionnaires are most appropriate to gather information about internal and subjective processes such as identity development and well-being, it should be noted that the sole reliance on a single informant may artificially inflate correlations among constructs.

Second, the present sample consisted of Caucasian European participants. Previous research has demonstrated numerous empirical parallels and commonalities across American and European Caucasian adolescents in the measurement of identity and in its relationship to psychosocial functioning (cf. Schwartz, Adamson, Ferrer-Wreder, Dillon, & Berman, 2006). Given the increased ethnic heterogeneity characterizing many Western countries, however, it may be important to replicate the present findings with non-White individuals. Although Schwartz et al. (2005) found substantial consistency across three U.S. ethnic groups in identity constructs such as commitment and exploration, it remains to be investigated how the different variables assessed in the present study interrelate in non-Western cultures or in non-Whites living in other Western cultures. Non-Whites also have unique identity concerns, such as ethnic identity, that may impact on well-being (cf. Schwartz, 2005), and these should be investigated in studies that include substantial numbers of non-White participants.

Replicating the present study with men is also a critical research direction. In an ancillary set of analyses, we conducted all of the primary LCGM analyses including both males and females, and none of the results described in the present article changed substantially by including males. Recent research on identity in emerging adults (e.g., Schwartz et al., 2005) indeed has suggested more similarities than differences in identity processes across gender. Nonetheless, it is important to replicate the present results with men as well as women.

Third, the period under study was relatively short (i.e., 3 years). Follow-up assessments beyond college are needed to determine how identity resolution during the transition to adulthood might be related to developmental trajectories of well-being and psychopathology in adulthood. Such long-term follow-ups are also important because (a) identity formation is viewed as a life-span developmental process (Waterman & Archer, 1990) and (b) effects of identity on adjustment indices extend well into adulthood (Helson & Srivastava, 2001). Similarly, future studies should also begin assessing identity earlier in adolescence, as a way of enabling researchers to identify antecedents to and longer-term trajectories of identity development (Schwartz, 2005).

Finally, the present study was not equipped to provide information about the exact processes or mechanisms that accounted for the observed differences in identity development. Future research might investigate if and to what extent factors such as illness, intrapersonal or social difficulties, and time or stress management-related reasons may impact differentially on the process of identity formation. These factors may be powerful markers of identity development and could function as underlying causes of some of the developmental co-occurrences described in the present article.

Despite these limitations and cautions, the present study has provided valuable information regarding the ways in which core identity dimensions and indices of adjustment interact across time during the transition to adulthood. The present results suggested that how one undertakes the process of identity formation may be related to the amount of risk for or protection against psychological distress. Moreover, although identity development and mental health likely influence each other in reciprocal fashion (cf. Grotevant, 1987), identity may be thought of as a developmental asset that contributes to thriving and positive development in emerging adulthood (Theokas et al., 2005). As a result, it is hoped that the present study will inspire more longitudinal research on the relationships of identity development to indices of positive and negative psychosocial functioning over time.

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