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## Modification of Luyckx et al.'s Integrated Process Oriented Model of Identity Formation

### Abstract

Our study attempts to assess the validity of a modification of the Luyckx, Schwartz, Berzonsky, Soenens, Vansteenkiste, Smits and Goossens' dual-cycle model of identity formation (2008). The model has been extended to include a sixth dimension because it takes two types of ruminative exploration into account. Thus, the model consists of reflective exploration in breadth, ruminative exploration in breadth and commitment making, which form a commitment formation cycle, and reflective exploration in depth, ruminative exploration in depth and identification with commitment, which in turn form a commitment evaluation cycle. Six hundred and forty-two Caucasian Poles (including 51 early adolescents, 270 late adolescents, 272 emerging adults and 49 young adults; 66% women) participated in our study. Confirmatory factor analysis and correlation analysis between identity dimensions indicate that the proposed model has a satisfactory internal validity. Analysis of variance in groups with different educational-professional contexts and ages, as well as correlation analysis of the identity dimensions with adjustment indicators, and ruminative and reflective self-consciousness show a satisfactory external validity. In summary, the proposed modification may present an alternative to the original model, but its limitations will also be discussed.

### Keywords

Identity, Exploration, Commitment, Rumination, Late adolescence, Emerging adulthood

### Streszczenie

Celem prezentowanych badań jest weryfikacja trafności teoretycznej zmodyfikowanego modelu podwójnego cyklu formowania się tożsamości Luyckxa, Schwartza, Berzonskyego, Soenensa, Vansteenkiste, Smits i Goossensa (2008). Model został poszerzony o szósty wymiar powstały przez wydzielenie dwóch typów eksploracji ruminacyjnej, odpowiednio przyporządkowanych cyklom kształtowania się tożsamości. Obejmuje on zatem: refleksyjne poszukiwanie szerokie, ruminacyjne poszukiwanie szerokie i podejmowania zaangażowania tworzące cykl formowania zobowiązania oraz refleksyjne poszukiwanie głębokie, ruminacyjne poszukiwanie głębokie i identyfikację ze zobowiązaniem tworzące cykl ewaluacji zobowiązania. W badaniu wzięło udział 642 uczestników (51 wczesnych adolescentów, 270 późnych adolescentów, 272 osób w okresie wyłaniającej się dorosłości i 49 młodych dorosłych; w tym

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66% kobiet). Wyniki confirmacyjnej analizy czynnikowej, analiza różnic w nasileniu wymiarów tożsamości między grupami różniącymi się kontekstem edukacyjno-zawodowym i wiekiem, a także analiza korelacji tychże wymiarów ze wskaźnikami przystosowania oraz z refleksyjną i ruminacyjną samoświadomością wskazują na zadawalającą trafność teoretyczną proponowanego modelu. Z kolei analiza korelacji pomiędzy wymiarami tożsamości wskazuje na zadawalającą trafność wewnętrzną. Podsumowując, proponowana modyfikacja może stanowić alternatywę dla modelu oryginalnego, jednak jej ograniczenia również zostaną przedyskutowane.

### **Słowa kluczowe**

wymiary tożsamości, poszukiwanie, zobowiązanie, ruminação, późna adolescencja, wyłaniająca się dorosłość

## **Identity Formation**

Since Erikson's (1950, 1968) creation of the ego identity formation theory, researchers in developmental psychology have remained interested in developing a sense of identity. Although identity development is a lifelong process, it is particularly important during adolescence (Erikson, 1950, 1968; Marcia, 1966), and even in early adulthood, since emerging adulthood in Western societies has lengthened (Arnett, 2000, 2001; Côté, 1996, 1997; Côté & Levine, 2002; Jensen, Arnett, & McKenzie, 2011). Marcia's concept of identity statuses (1966) is underlies many empirical studies on identity development. Marcia describes four possible identity solutions that have been distinguished based on strength and direction of the two fundamental identity processes: exploration and commitment. Exploration is defined as a period of choosing, sorting through, rethinking, and trying out various roles and life plans, whereas commitment, as a degree of personal investment exhibited by an individual in a course of action or belief (Marcia, 1966, Kroger & Marcia, 2011). Definitions included in Marcia's concept are quite broad and consequently became an inspiration for other works with a different approach to the dimensions of exploration and commitment. As a result, concepts originating from the identity status theory have focused to varying degrees on particular aspects of identity development – from the approach focusing on commitment formation (Waterman, 1982), through an approach equally emphasizing commitment formation and evaluation (Grotevant, 1987), to concepts focusing on commitment evaluation (Bosma & Kunnen 2001; Crocetti, Rubini, & Meeus 2008; Kerpelman, Pittman, & Lamke, 1997; Kunnen, Sappa, van Geert & Bonica, 2008; Meeus, 1996; Meeus, Iedema, & Maassen, 2002; Stephen, Fraser, & Marcia, 1992). Consequently, exploration is referred to as consideration of a variety of options and in depth analysis of the identity choices. Whereas, commitment is analysed for making choices, as well as the degree of identification with decisions that have already been made (Luyckx, Goossens, Soenens, & Beyers, 2006b).

## **Luyckx et al.'s Integrated Oriented Process Model of Identity Formation**

Assuming that both the formation and evaluation of commitments are important for identity formation, Luyckx, Goossens, Soenens, Beyers and Vansteenkiste (2005) developed a dual-cycle model of identity formation. In this model, they have not only taken into account the aspect of commitment formation and evaluation, but also precisely defined the processes of exploration and commitment, which play a key role in individual stages of identity shaping. The original version of the dual-cycle model of identity formation assumed that identity formation was carried out in two complementary cycles, comprising four processes. Identity formation begins with a commitment formation cycle consisting of exploration in breadth, associated with collecting information on various identity options (directions in defining self) and commitment making that refers to making choices in important identity issues. When a person makes such decisions, a commitment evaluation cycle begins and consists of exploration in depth, understood as gathering information on selected options, in order to assess their compliance with an individual's standards and capabilities, and identification with commitment, associated with a degree to which an individual perceives the decisions and courses of action as complying with a person's own aspirations and desires, as well as the certainty level that they are suitable for this individual. If, as a result of an exploration in depth, an individual finds that the chosen options do not meet personal standards, preferences or capabilities, we observe a return to the previous cycle and resumption of exploration in breadth, which then resembles the reconsideration of commitment included in the three-factor model by Crocetti, Rubini, and Meeus (2008). In order to compare this model with the concept of identity statuses, Luyckx et al. (2005) have identified five clusters that differed in terms of a configuration of identity processes, and represented equivalents of the identity statuses.

Although the four-factor model has been successfully verified empirically (Luyckx et al., 2005; Luyckx, Goossens, & Soenens, 2006a; Luyckx, Goossens, Soenens, & Beyers, 2006b; Luyckx, Soenens, & Goossens, 2006c), the authors give thought to conflicting results concerning the relationship of exploratory processes with a person's adjustment. On the one hand, it is associated with openness and curiosity, on the other hand with a higher severity of anxiety and depressive symptoms, and concerning exploration in breadth with neuroticism (Luyckx et al., 2006c). Trapnell and Campbell's concept (1999) introduces a distinction between reflective private self-attentiveness motivated by openness, and ruminative private self-attentiveness motivated by fear, and attempts to explain the self-absorption paradox that relates to the relationship of private self-consciousness with both wider self-consciousness, and a higher severity of psychological distress (Alloy & Abramson, 1979). Luyckx, Schwartz, Berzonsky, Soenens, Vansteenkiste, Smits, Goossens (2008) found that exploration also has a dark side and

extended the model by adding a fifth dimension – ruminative exploration. The researchers assumed that current dimensions of exploration in breadth and exploration in depth have a reflective or, in other words, adaptive nature, and support identity formation, whereas ruminative exploration represents a maladaptive form of identity exploration. It is linked to a sense of coercion and experiencing intrusive distressing emotions, thus, it may hinder or even inhibit satisfactory identity formation. To evaluate the five identity dimensions in relation to the overall plans for the future, the authors have developed Dimensions of Identity Development Scale (DIDS). Studies conducted with this scale indicated a satisfactory theoretical validity of the model. Similarly to the model's first version, cluster analysis was also conducted and the identity process configurations that correspond with the six solutions of identity (statuses) were determined (Luyckx, Schwartz, Berzonsky, Soenens, Vansteenkiste, Smits, & Goossens, 2008; Luyckx, Schwartz, Goossens, Beyers, & Missotten, 2011).

## **Current Study**

### **The Proposed Model**

Luyckx et al.'s (2008) integrated process oriented model of identity formation represents an interesting and complex proposition for identity shaping, which is very popular also in Poland. Dimensions forming a commitment formation cycle and dimensions creating the commitment evaluation cycle included in the model's first version allow one to comprehensively capture the identity formation issue. This model is used for early and middle adolescence, which is more involved in activities related to handling various alternatives of identity, for late adolescence and emerging adulthood where persons have already made commitments and face the tasks associated with assessing the choices they have made, as well as for those at later stages of adulthood, who, for various reasons, have abandoned their existing commitments or are forced to change them. Enriching the model with ruminative exploration, and therefore, including both adaptive and non-adaptive forms of exploration, allows one to more deeply and with more differentiation analyse the relationship between identity processes and well-being. However, introducing ruminative exploration also disrupted the original classification of commitment formation and commitment evaluation cycles, because in the extended model, this process is beyond these cycles. Therefore, the authors themselves admit the possibility that a similar distinction, as in the reflective types of exploration (exploration in breadth and in depth), may also apply to a ruminative exploration and suggest the need for further study of this issue (Luyckx et al., 2008).

According to these suggestions, in our study we decided to verify the validity of the model, which involves two types of processes: reflective and ruminative, for both exploration

in breadth and in depth. In the original model, while defining exploration in breadth and in depth, the authors did not emphasize enough the reflective nature of these processes and their relationship with openness and general curiosity, and therefore, they did not take it into account in measurement of their model (Luyckx et al., 2008). In the modified six-factor model, definitions of exploration processes take into consideration their reflective and ruminative character. Thus, reflective exploration in breadth refers to seeking information with openness and cognitive curiosity and considering different identity possibilities in which an individual is involved before making a commitment. Ruminative exploration in breadth also refers to a search for information and consideration of various identity options; however, this process involves experiencing uncertainty, anxiety and persistent preoccupation. Thus, an individual's exploratory activity is defined in the same manner as exploration in breadth in the original model, but in particular definitions, reflectivity (openness) and ruminativity (doubt, anxiety) components were also included. It is analogous, in the case of reflective exploration in depth and ruminative exploration in depth, which refer to a search and analysis of information on selected options and assessment of commitments undertaken earlier. However, reflective exploration in depth is an active process that is associated with openness and self-satisfaction, and ruminative exploration in depth is a persistent preoccupation associated with recurring doubts, experiencing anxiety and uncertainty.

In addition, we decided to introduce a change in the method for defining commitment making. In validation studies of the Polish version of the DIDS, the correlation coefficient between the dimensions of commitment was .79 (Brzezińska & Piotrowski, 2010b). In subsequent studies, correlations of these dimensions were even stronger. For example, in the study presented by Ciecuch at the XIX Polish Developmental Psychology Conference (2010) this correlation was .81, and in the study presented by Wysota, Pilarska and Adamczyk at the XXII Polish Developmental Psychology Conference (2013) it was .84. In the studies using the Dutch version of DIDS, these correlations were lower, but also significant at .62 in the high school sample and .67 in the university sample (Luyckx et al., 2008). However, in previous studies, Luyckx and colleagues substantiated theoretically and verified empirically the validity of both commitment dimensions (Luyckx et al., 2006b). Both commitment making and identification with commitment are essential elements of the model. Commitment making represents a culmination of the commitment formation cycle and is a necessary condition for beginning an exploration in depth, and thus entering a cycle of obligation evaluation, which is closed by identification with commitment. This cycle ends, at least temporarily, the process of identity formation. We assumed that the reasons for such a high covariance should be considered. We accepted the possibility that Polish respondents (but not only them) find it difficult to distinguish between commitment making and identification with commitments, especially since the method has a declarative nature and relates to general objectives.

It may be particularly difficult for adolescents, because they tend to manifest youthful radicalism and idealism (Obuchowska, 2009). When entering adulthood, both the quality and strength of commitment undergo change (Grotevant, 1987; Marcia, 1966; Waterman, 1982), as a result of a more thorough analysis of the initial commitments (Bosma & Kunnen, 2001). Many available possibilities plus social pressure to make important decisions for the future could cause young people to know that their commitments can be changed when the chosen path does not suit them, or if other options prove to be more attractive (Arnett, 2000, 2001; Bańka 2007, 2009; Szafranec 2011). Therefore, we decided that it is appropriate to define commitment making as an initial choice making regarding important identity issues, and as a temporary decision to engage in activities that are associated with them. We believe that this will increase this process's measurement accuracy through facilitation of the differentiation between commitment making and identification with commitment, which, as in the original model, refers to the degree of internalization of commitment that has already been made and a sense of confidence that those commitments were right. Moreover, this approach to commitment making seems to be more useful in the model which is more closely oriented on differentiating adaptive and maladaptive identity processes as it allows one to consider persons who, for various reasons, temporarily or permanently do not make strong identity decisions (Bańka, 2009; Breakwell, 1986; Frost & Shows, 1993; Fuqua, Newman & Seaworth, 1998; Tokar, Withrow, Hall & Moradi, 2003; Wolfe & Betz, 2004).

In sum, proposed modification of Luyckx and colleagues' model presupposes the existence of six identity dimensions: reflective exploration in breadth, ruminative exploration in breadth and commitment making that form a commitment formation cycle, and reflective exploration in depth, ruminative exploration in depth and personal identification with commitment that form a commitment evaluation cycle. Figure 1 presents a diagram of the modified model.

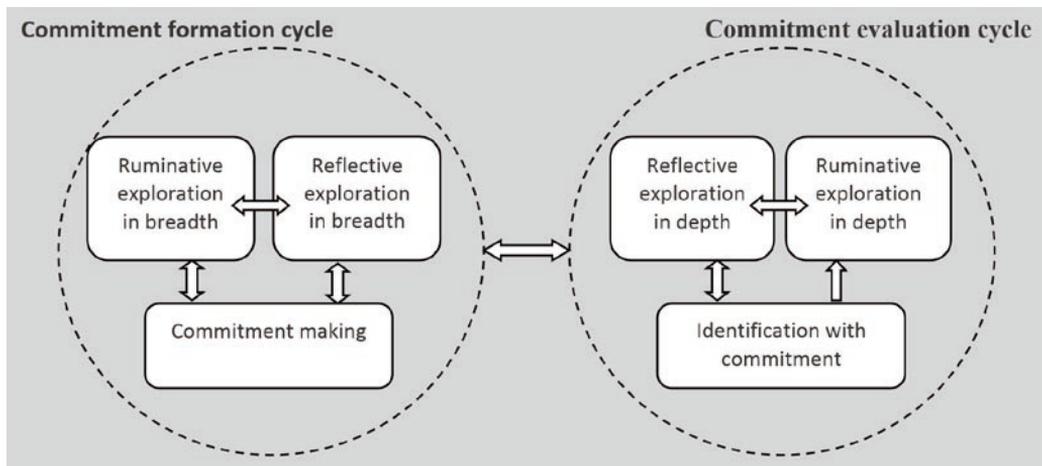


Fig. 1. Diagram of the proposed model.

## Aims of the Current Study

Our main objective in this study is to verify the proposed model's internal and external theoretical validity. Elements in our study mainly relate to the research plan applied by Luyckx and colleagues in verifying their five-factor model (Luyckx et al., 2008). However, at this stage, we abandoned attempts to isolate identity types or statuses, characterized by a specific configuration of individual identity dimensions. Our paper will also present current activities related to constructing a questionnaire to assess the six identity dimensions. However, it should be noted that the constructed tool is a prototype and is mainly used to verify the proposed model's validity<sup>2</sup>.

**Factorial validity.** Factorial validity of the modified dual-cycle model of identity formation was tested using confirmatory factor analysis (CFA). We expected all fit measures to reach satisfactory values. The proposed model was then compared with alternative models, created by factors analogously similar to those included in the original models: (1) the four-factor model, constructed with the following dimensions: exploration in breadth, commitment making, exploration in depth and identification with commitment (Luyckx et al., 2005), where the dimensions of exploration in breadth and in depth were created by adding up the results related to reflective and ruminative types of particular explorations and (2) the five-factor model with its following dimensions: exploration in breadth, commitment making, exploration in depth, identification with commitment and ruminative exploration (Luyckx et al., 2008), where the ruminative exploration dimension equals the sum of the ruminative exploration in both breadth and depth.

**Associations among the identity dimensions.** In order to examine the internal validity, hypotheses on a correlation between the dimensions of the model were verified. Hypotheses were based on the results obtained during the internal validity testing of previous versions of the model (cf. Luyckx et al., 2005, 2008) with changes considered the specificity of the six-factor model. We anticipate that the reflective dimensions of exploration in breadth and in depth, as well as the ruminative dimensions of exploration in breadth and in depth, will maintain a positive relationship with each other, because they share a reflection or rumination component. If reflective and ruminative exploration processes are separate identity processes, we anticipate that the dimensions of reflective and ruminative exploration in breadth, as well as dimensions of reflective and ruminative exploration in depth, will not be linked with one another. Subsequently, we hypothesized that ruminative exploratory processes, which inhibit or even block the formation of mature commitments, remain in a negative relation to the identification with commitment. At the same time, we do not expect a correlation between

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<sup>2</sup> Current model measurement is The Identity Processes Questionnaire [Słowińska, A. & Oleszkowicz, A. (2015). The Identity Processes Questionnaire (IPQ) – measure validation. *Studia Psychologiczne (Psychological Studies)*, 53(3), 9-18.]

ruminative processes and commitment making which, because of its preliminary nature, can be both suppressed and amplified by ruminative explorations. Consequently, we expect that reflective explorations will correlate positively with the two dimensions of commitment, because they support both commitment making and identification with commitments. We also expect the relationship between the two commitment dimensions, however, to be much less than in those models emphasizing a weaker preliminary nature of a made commitment. We expect the correlation to be at a moderate level, at the most.

**Mean ranks differences in the identity dimensions by life context and gender.**

To examine theoretical validity, as in the study by Luyckx and colleagues (2008), we decided to verify the hypothesis of mean differences in identity dimensions by an educational-professional context (or age) and gender. We expect that by including the four samples that differ in terms of educational-professional context (or age), we are able to capture the significant differences in the intensity of identity processes between groups. We expect that with changes in context, both reflective exploration in breadth (cf. Luyckx et al., 2008) and ruminative exploration in depth decreases. Furthermore, we anticipate that the intensity of reflective exploration in depth is the highest in a university sample, because emerging adulthood is a period of intense identity exploration, in a situation, when some identity choices have been made (Arnett, 2000, 2001). We also hypothesized that identification with commitment would significantly increase with age and change in an educational-professional context. Referring to the results of previous studies (cf. Luyckx et al., 2008), we do not expect significant differences in the identity processes across gender, as well as interactive effect of gender and the educational-professional context.

**Associations of the identity dimensions with adjustment and private self-consciousness.** While testing the model's external construct validity, association with adjustment, self-reflection and self-rumination were also being verified. Adjustment was recognized both as well-being indicated by self-esteem and positive affect, as well as distress indicated by negative affect. Most hypotheses about the relationships between variables are based on the five-factor model verification (cf. Luyckx et al., 2008), with the exception reflective exploration in depth and commitment making, because these definitions (which we have introduced) differ significantly from the original definitions. According to current definitions, reflective exploration in breadth is associated with openness and cognitive curiosity, similarly to reflective exploration in depth, but this process is also linked with self-satisfaction. Therefore, we hypothesized that there is a positive relationship between a reflective exploration in depth and well-being, whereas reflective exploration is independent of the well-being determinants. Ruminative exploration is associated with persistent preoccupation and experiencing unpleasant emotions, therefore, we expect that both ruminative exploration in breadth and ruminative exploration in depth are positively associated with distress and negatively

with well-being. Moreover, we expect that reflective exploration dimensions demonstrate a positive relationship with self-reflection, and ruminative dimensions with self-rumination. Furthermore, according to the previous research results on the relationship of the identity dimensions with adjustment (cf. Luyckx et al., 2006b), it has been hypothesized, that identification with commitments is associated with adjustment, positively with well-being and negatively with distress. However, given preliminary nature of commitment making, we expected the lack of its relationship with adjustment indicators. Thus, by correlating identity dimensions with external variables, it is possible to examine both convergent and divergent validity.

In order to capture the different predictive powers of the two introduced ruminative dimensions, we went to further regression analysis to predict the adjustment level (self-esteem, positive effect and negative effect) from the identity dimension. High school students are confronted with a need to make important decisions about their further education or career paths, which often require reorganizing their current life and even changing their residence. Whereas, for university students, this period of life is already behind them and due to their educational status, they represent a sample of emerging adults that are less affected by a prolonged exploration in breadth, which results in poorer adjustment (Schwartz, Zamboanga, Weisskirch, & Rodriguez, 2009). Therefore, we hypothesized that in older adolescents, ruminative exploration in breadth is a predictor of poorer adjustment, and thus is associated with a lower self-esteem, lower intensity of positive effect and higher intensity of negative emotions. Whereas in a group of university students, such relationships do not exist. For ruminative exploration in depth, we do not anticipate any association with adjustment because as we indicated earlier, older adolescents are absorbed to a greater extent by analysing various options than by deepening them. Also, among university students, we expect no association between ruminative in depth exploration and adjustment. On the one hand, precisely due to their continuation of education at the university, they are in an advantageous position and reflective exploration in depth should be more strongly associated with their adjustment. On the other hand, their personality is more formed, and as a result, both their self-esteem and emotionality should be less dependent on the actual identity processes.

## **Methods**

### **Participants and Procedure**

The research was carried out in western Poland. Participation in the study was voluntary, anonymous and free of charge. Data were collected during individual and group sessions. The study involved 725 Caucasian Poles, of which 642 persons with no missing data were included in the analyses. Part of the respondents filled out only identity proc-

ess measure, and some a complete set of tools. The way samples were selected allowed for differentiating the respondents in terms of both educational-professional context on one hand, as well as their development phase at that moment on the other. There were 425 women (66%) and 217 men (34%) among the respondents. The average age was 20 years and four months ( $SD = 4.41$ ). The subjects were recruited from different sized cities: 58% came from cities with over 200,000 inhabitants, 29% from towns with less than 200,000 inhabitants, and 13% from rural areas.

Sample 1 consisted of 51 early adolescents attending secondary schools. The average age was 14 years and three months ( $SD = .31$ ). Sample 2 consisted of 270 late adolescents, students of three high schools with different learning profiles, of which 162 respondents completed a full set of tools. The average age in this group was 18 years and one month ( $SD = .46$ ). Sample 3 consisted of 272 emerging adults, of which 178 filled out all the tools. Respondents were recruited from the students of six universities in Wrocław; however, psychology students were not invited to participate. The average age of the students was 21 years and nine months ( $SD = 2.26$ ). Sample 4 consisted of 49 professionally active early adults. The average age in the sample was 32 years and four months ( $SD = 2.0$ ).

Additional research to establish identity domains was conducted before constructing a tool to measure identity processes. Participants and the procedure followed will be discussed separately in the next section.

## Measures

**Identity dimensions.** Due to the lack of a tool to differentiate dimensions of ruminative exploration in breadth and ruminative exploration in depth, we decided to create a measurement prototype for identity dimensions. We assumed that the questionnaire should assess processes that were important for young Poles identity domains.

**Identifying important identity-relevant domains.** Empirical reports indicate that identity formation can be different, depending on the area in which it occurs (e.g. Bartoszek & Pittman, 2010), as well as the commitment in particular identity domains differs when taking into account such variables as socioeconomic and sociocultural group characteristics (e.g. Alberts, Mbalo & Ackermann, 2003). Measures based on Marcia's concept of identity statuses allow one to assess identity formation in a number of general and specific areas (Adams, 1998; Balistreri, Busch-Rossnagel, & Geisinger, 1995; Bosma, 1985, as cited in Kunnen, Sappa, van Geert, & Bonica, 2008; Crocetti, Rubini, & Meeus, 2008). However, empirical data is lacking regarding which of these areas are actual identity domains.

To answer the question which areas are important to young Poles in terms of exploration and identity choices, we conducted additional research. The sample consisted of 202 participants, including 69 (34%) high school students and 133 (66%) students

of humanities and engineering universities. The average age was 20 years and one month ( $SD = 2.18$ ). Women accounted for 64% of the sample. The study was voluntary, anonymous and free. Data were collected during individual and group sessions conducted in schools located in western Poland. We used the Polish language version of Twenty Statements Test (TST; Baumann, Mitchell Jr, & Persell, 1989). Participants were asked to fill in 20 empty lines by giving different answers to the question “Who am I?”. This choice of tool allowed the participants an easy expression and was not limited by specific questions, while at the same time allowing for structured data collection and analysis.

Collected data were evaluated by three competent independent judges. Their task was to analyse all responses and determine to which identity domain each self-description was referring (occupation, religion, politics, philosophical life-style, friendship, dating & intimate relationship, sex roles, recreation & leisure, and others). To avoid distortions arising from defining these areas, the judges were given the items from the Objective Measure of Ego Identity Status (EOMEIS-2; Adams, 1998) grouped into particular domains instead of definitions. The choice of this method was dictated by two reasons. First, it clearly differentiates areas that are defined at a similar level of generality, and second, it contains up to eight statements about each identity domain associated with individual identity statuses, which gives the judges many examples and allows for a qualification of the subject's responses into particular categories. The response was considered to be associated with a domain when the evaluations by all the judges were consistent.

The percentage of respondents who at least once spontaneously responded to the question “Who am I?” by referring to the respective domain are presented in Table 1. The results concerning the sphere traditionally known as interpersonal were consistent with previously considered identity domains, and over half of respondents referred to this area (from 55% for dating and intimate relationships to 85.6% for occupation). However, in the respondents' description of themselves, the results regarding the ideological sphere did not overlap with the existing thesis. Traditionally, politics and religion were considered to be the areas of particular importance in identity formation. Erikson (1968) has already argued that young individuals have a need to build their relationship with society by identifying themselves with political and religious views. However, the results indicated that only 23.8% of respondents addressed religious issues and merely 4.5% political issues. Since the end of World War II until 1989, due to the political system prevailing in Poland, there was only one dominant political party. Since the system transformation, which started in 1989, the political situation in Poland has been characterized by high dynamics and unclear political divisions (e.g. Czubiński, 2003). These facts may explain the low level in which young Poles include political issues in identity identification. More difficult to explain is the very low level of reference to religion, as in Polish

society religious issues are widely exposed. Although, according to data from the Central Statistical Office in Poland, at the end of 2008, there were 179 churches and denominations, and 88% of Poles declared themselves to be Roman Catholics (Dmochowska, 2011). It is possible that due to this small religious diversity, some respondents could decide not to address the area of religion, considering their religion to be obvious.

Table 1

*The number of respondents who at least once reacted spontaneously to different areas of functioning, by answering the question “Who am I?”*

		Identity Domain							
		Occupation	Religion	Politics	Philosophical Life-Style	Friendship	Dating & intimate relationships	Sex Roles	Recreation & Leisure
High school <i>n</i> = 69	<i>N</i>	52	9	3	48	52	37	42	63
	%	75.4	13.0	4.3	69.6	75.4	53.6	60.9	91.3
University <i>n</i> = 133	<i>N</i>	121	39	5	105	69	74	120	80
	%	91.0	29.3	3.8	78.9	51.9	55.6	90.2	60.2
Total <i>N</i> = 202	<i>N</i>	173	48	9	153	122	111	162	143
	%	85.6	23.8	4.5	75.7	60.4	55.0	80.2	70.8

Considering the results, we decided to include the following areas in the questionnaire: friendship, intimate relationships, and sex roles in the interpersonal sphere; and occupation, leisure & recreation, and philosophy of life-style in the ideological-exercise sphere. The philosophy of life-style has been defined so broadly that it included religious issues and practiced values. Leisure & recreation were sometimes incorporated into the interpersonal sphere, but there is evidence that leisure activities are closely linked with the development of professional identity during the period of educational activity (Alberts et al., 2003; Vondracek & Skorikov, 1997).

**Questionnaire construction.** Sixty initial items were created after considering six dimensions of identity (reflective exploration in breadth, ruminative exploration in breadth, commitment making, reflective exploration in depth, ruminative exploration in depth, and identification with commitment) and six identity domains (friendship, intimate relationships, sex roles, occupation, leisure & recreation, and philosophy of life-style). All dimensions of exploration were operationalized in reference to both cognitive and behavioral activity. We assumed that there might be differences in the intensity of cognitive and behavioral exploratory actions, depending on the area to which they related. Moreover, we also assumed that the reference to more expressive behavioral actions would be easier for

the youngest respondents in Sample 1. Forms of activity were not included in the dimensions of commitment, recognizing that according to a definition of the process, commitment making applies to decision-making, thus, it occurs mainly in a cognitive area while identification with commitment is based on a cognitive-behavioral component.

Content validity of the questions was evaluated by seven competent judges (second year doctoral students of psychology) familiarized with both the original and the modified model of dual-cycle identity formation. The test material was a questionnaire made up of items arranged in random order. The judges were asked to: (1) complete the questionnaire following the instructions for respondents, (2) assign each question to one of the dimensions, (3) assess the language readability of each question on a four-point Lickert type scale, and (4) note any comments and suggestions. We decided that the criterion of content validity would be met by those positions classified to a particular dimension by four or more judges, and linguistic clarity by those items for which the average grade was at least 3, and the median coefficient of variation was less than 0.2.

Fifty-one items met the criteria for content validity. According to earlier doubts, the dimension of commitment making was often mistakenly recognized, and only two items were correctly identified by more than half the judges. Fifty-six items met linguistic clarity criteria. Forty-eight items that met all criteria were included in the pilot version of the questionnaire in their unchanged form. The remaining items were discussed, and then reformulated. Despite the ambiguity of the commitment making dimension, we decided to keep it in the model, but phrasing that clearly emphasizes its preliminary nature has been introduced.

**Identity Process Questionnaire.** The Identity Process Questionnaire pilot version (IPQ-P) comprised 60 items – six for each commitment dimension (one question for each domain) and 12 for the distinguished exploration dimensions (6 domains X 2 questions: one about cognitive exploration and one about behavioral exploration). Sample test items are presented in Table 2. Respondents' goal is to determine the extent to which each statement described them and their beliefs. Answers were given on a four-point Likert-type scale, ranging from 1 (*definitely does not describe me*) to 4 (*definitely describes me*).

Table 2

*Sample items the IPQ-P*

Reflective exploration in breadth / Leisure & Recreation / Behavioral activity Example: <i>I can determine what I like to do the most, due to the fact that I spend my free time in many different ways.</i>
Ruminative exploration in breadth / Intimate relationships / Cognitive activity Example: <i>I worry that I will not be able to build a relationship that will meet my expectations.</i>
Commitment making / Occupation Example: <i>I have already decided what profession I would like to have; however, my career plans may still change.</i>

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 Reflective exploration in depth / Friendship / Cognitive activity

 Example: *By analysing my relationships with people who are close to me, I gain a clearer vision of friendship.*


---

Ruminative exploration in depth / Sex roles / Behavioral activity

 Example: *Although I do what I think a man or a woman should be doing, this role does not fulfill me.*


---

Identification with commitment / Philosophy of life-style

 Example: *I am sure that my lifestyle, beliefs and values, that I live by are completely mine and are agreeing with me.*


---

Cronbach's alpha values for Sample 2, Sample 3, and for Sample 2 and 3 together, are shown in Table 3. Most scales had good reliability (Cronbach's alpha  $\geq .70$ ); only in the university sample, estimated Cronbach's alpha for the identification with commitment scale is only .61, suggesting a multidimensional nature of identification with commitment in emerging adulthood. However, all the coefficients still remained at an acceptable level and reached a similar or greater value than the reliability indicators of other measures used to assess identity elements, which relate to different functioning areas (Adams, 1998; Balistreri et al., 1995).

Table 3

*Cronbach's Alphas for the scales of IPQ-P*

	Cronbach's Alpha		
	Sample 2 + Sample 3 <i>n</i> = 340	Sample 2 <i>n</i> = 162	Sample 3 <i>n</i> = 178
Reflective exploration in breadth	.78	.78	.78
Ruminative exploration in breadth	.82	.82	.82
Commitment making	.70	.70	.71
Reflective exploration in depth	.80	.81	.77
Ruminative exploration in depth	.82	.82	.82
Identification with commitment	.70	.74	.61

Verifying the modified model's construct validity, which was our primary objective in conducting the research, served also to verify the IPQ-P validity. Results regarding validity of the questionnaire and the model are described and discussed together in the subsequent paragraphs.

**Adjustment.** Selecting adjustment measures was dictated by the desire to capture both well-being and distress; these variables were used in the research plan for testing the external validity of the five-dimensional model (Luyckx et al. 2008). However, when assessing distress, we decided not to use psychopathological phenomena measures, such as symptoms of depression and anxiety, but to use negative affect, which remained in a strong relationship with them (Watson, 2005). Self-esteem and positive affect were treated as correlates of well-being.

Self-esteem was measured using the Self-Esteem Scale (SES; Rosenberg, 1965). The Polish adaptation was created by Dzwonkowska, Lachowicz-Tabaczek, and Laguna (2008). SES is a one-dimensional tool that allows researchers to rank participants based on their self-esteem. It comprises ten statements relating to a general level of self-esteem, understood as the attitude towards Self. Respondents answer questions regarding their beliefs about themselves using a four-point Likert-type scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Cronbach's alpha in the present study was .84 in Sample 2, and .88 in Sample 3.

Positive and negative affect was measured using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988, 1998) in the Brzezinski's Polish adaptation (2010). Version of the scale that was used, consists of a list of ten positive and ten negative adjectives that relate to emotional states experienced by respondents, its intensity is assessed on a five-point scales, ranging from 1 (*slightly or not at all*) to 5 (*very strongly*). Modified instructions, accepted by the authors (Brzeziński 2010; Watson & Clark, 1994) were used and according to them subjects rated their experienced intensities of particular emotions during the last few weeks. The original version is used to test long-term emotional dispositions (*How do you usually feel?*) or short-term emotional states (*How do you feel at the moment?*). The instructions regarding the last few weeks made it possible to collect data on relatively stable emotional states, which could then be interpreted as an indication of symptoms of both anxiety and fear (Watson, 2005), as well as a person's adjustment level (Brzezinski, 2010; McDowell, 2006). Correspondingly, for the positive affect scale and the negative affect scale, Cronbach's alphas in the presented study equaled .87 and .89 in Sample 2, and .89 and .88 in Sample 3.

**Self-reflection and self-rumination.** As in the original studies (Luycks et al. 2008), Trapnell and Campbell's Rumination-Reflection Questionnaire (RRQ; 1999) was used to measure self-reflection and self-rumination. Each of the two scales consists of 12 statements that describe ruminative and reflective activities. For each statement, respondents specify a level of their agreement or disagreement, using a five-point Likert-type scale, ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Cronbach's alphas in the current study equaled .87 and .87 in Sample 2, and .88 and .87 in Sample 3, for the self-rumination scale and the self-reflection scale, respectively.

## Results

### Factorial Validity

Due to the model's high complexity and high number of observed variables in relation to the number of latent variables, during the factorial validity test we applied Confirmatory Factor Analysis (CFA) with parceling. We used random parceling – three

groups of four items were created for each exploration dimension, and two groups of three items for each commitment dimension. CFA was performed using SPSS Amos 20. The fit measures are presented in Table 4. The fit indices show that the proposed six-factor model fits the data adequately,  $\chi^2 = 296.16$ ,  $df = 89$ ,  $RMSEA = .07$ ,  $GFI = .94$ ,  $AGFI = .90$ ,  $CFI = .94$ . Standardized pattern coefficients for the parcels on their respective factors ranged between .69 and .83. Moreover, the CFA indicates the modified model fits better than does the five-factor model containing one ruminative exploration dimension,  $\chi^2 = 414.13$ ,  $df = 94$ ,  $RMSEA = .08$ ,  $GFI = .91$ ,  $AGFI = .87$ ,  $CFI = .91$ , and better than in the four-factor model that does not differentiate reflective and ruminative exploration forms, which does not meet the criteria of a good fit,  $\chi^2 = 1540.50$ ,  $df = 98$ ,  $RMSEA = .17$ ,  $GFI = .65$ ,  $AGFI = .51$ ,  $CFI = .61$ .

Table 4

*Fit measures of the tested models in the CFA in Sample 2 and 3 (n = 542)*

Model	$\chi^2$	df	$\chi^2/df$	RMSEA	GFI	AGFI	CFI
six-factor model	296.16	89	3.33	.066	.94	.90	.94
five-factor model (RuEB + RuED)	414.13	94	4.41	.079	.91	.87	.91
four-factor model (ReEB+RuEB, ReED+RuED)	1540.50	98	15.72	.165	.65	.51	.61

*Note:* ReEB, Reflective exploration in breadth; RuEB, Ruminative exploration in breadth; ReED, Reflective exploration in depth; RuED, Ruminative exploration in depth; df, degrees of freedom,  $\chi^2$ , maximum likelihood chi-square; RMSEA, root mean square error of approximation; GFI, goodness of fit index; AGFI, adjusted goodness of fit index; CFI, comparative fit index. In the reduced models + connecting the dimensions means that they were combined into a single dimension.

### Associations among the Identity Dimensions

Correlation between the model's dimensions were verified using SPSS Statistics 20. The results are shown in Table 5. In most cases, correlations were consistent with the hypothesis and the direction of the correlation was the same in both samples. Both reflective explorations and ruminative explorations positively correlated with each other, although the strength of correlation between ruminative explorations was higher than expected,  $r = .67$ ,  $p < .001$  in Sample 2, and  $r = .71$ ,  $p < .001$  in Sample 3. Ruminative exploration dimensions negatively correlated with identification with commitment and this association was significantly stronger among high school students,  $r = -.27$ ,  $p < .001$ ;  $r = -.25$ ,  $p < .001$  for ruminative exploration in breadth and ruminative exploration in depth, respectively, than for university students,  $r = -.60$ ,  $p < .001$ ;  $r = -.60$ ,  $p < .001$ ;  $z = 5.01$ ,  $p < .001$ . Both dimensions of ruminative exploration did not correlate with commitment making. Commitment dimensions positively correlated with reflective types of exploration, with one exception – in the emerging adults' group, identification with commitment was uncorre-

lated with reflective exploration in breadth,  $r = .11, p = .08$ . In the older group, according to the hypothesis, there was also no connection between commitment making and identification with commitment, which was observed in the younger group.

Significant differences between groups differing in the educational-professional context were also observed in the correlation between reflective exploration in breadth and ruminative exploration in breadth. In the older group, these dimensions had no common variance; however, in the younger group, they are positively correlated,  $r = .33, p < .001; r = .08, p < .018$  for Sample 2 and for Sample 3, respectively;  $z = 3.04; p = .001$ . Concerning the correlation of reflective exploration in depth and ruminative exploration in depth, in the younger group association did not exist, whereas in the older group these dimensions correlated negatively,  $r = -.03, p < .58; r = -.37, p < .001$  for Sample 2 and for Sample 3, respectively;  $z = 4.15; p < .001$ . We consider these differences to be very interesting and theoretically justified.

Table 5

*Correlations between the dimensions of the model, in Sample 2 (n = 270) and Sample 3 (n = 272)*

	1.	2.	3.	4.	5.	6.
1. ReEB		.33**	.31**	.43**	.26**	.24**
2. RuEB	.08		.03	-.06	.67**	-.27**
3. CM	.17**	-.04		.50**	.12	.25**
4. ReED	.34**	-.42**	.26**		-.03	.59**
5. RuED	.04	.71**	.07	-.37**		-.25**
6. IC	.11	-.60**	.08	.52**	-.60**	

*Note:* ReEB, Reflective exploration in breadth; RuEB, Ruminative exploration in breadth; CM, Commitment making; ReED, Reflective exploration in depth; RuED, Ruminative exploration in depth; IC, Identification with commitment. Sample 2 correlations above the diagonal; Sample 3 correlations below the diagonal.

\*\*  $p < .01$ .

### Mean Differences in the Identity Dimensions by Life Context and Gender

In order to determine the differences between groups, we used multivariate analysis of variance following by Duncan's multiple range test and the Kruskal-Wallis analysis of variance with post-hoc comparisons of mean ranks (all showed  $p$ -values refers to the two-sided significance levels with a Bonferroni adjustment). Analyses were performed using STATISTICA 10. Results of multivariate analysis of variance of all six identity dimensions for the educational-professional context and gender, performed on the data of Sample 2 ( $n = 168$ ) and Sample 3 ( $n = 178$ ) were consistent with our hypotheses. There was no significant main effect for gender,  $F(6,331) = .90, p = .49, \eta^2 = .02$ , nor an interactive effect of gender and educational-professional context,  $F(6,331) = 1.48, p = .19, \eta^2 = .03, \lambda_{\text{Wilks}} = .97$ . However, we captured a significant main effect of educational-professional context,  $F(6,331) = .90, p < .001, \eta^2 = .08$ .

Results of a non-parametric analysis of variance for the educational-professional context (or age) conducted on data from all samples (i.e., lower secondary schools/early adolescence, secondary school/late adolescence, higher education/emerging adulthood, professional work/early adulthood) were mostly consistent with our hypotheses. Differences in mean ranks are presented on Figures 2. There was significant effect of context on reflective exploration in breadth,  $\chi^2(3, N = 440) = 13.06, p = .005$ . Young adults had a significantly lower scores in this dimension than those of the younger group,  $z$ -score were from 2.73 to 3.47, significance levels from .003 to .04. Similarly, we observed significant differences in ruminative exploration in breadth,  $\chi^2(3, N = 440) = 20.86, p < .001$ . Early adolescents achieved higher scores on this dimension than the representatives of older groups ( $z$ -score were from 3.39 to 4.29, significance levels from .0001 to .004). Differences in average scores in reflective exploration in depth were significant as well,  $\chi^2(3, N = 440) = 19.73, p < .001$ . Emerging adults achieved higher scores than early adolescents,  $z = 2.81, p = .03$ , and late adolescents,  $z = 3.96, p < .001$ , however, there was no significant difference between them and young adults,  $z = 0.36, p = 1.00$ . The intensity of identification with commitment in particular groups also significantly differed,  $\chi^2(3, N = 440) = 32.51, p < .001$ . Young adults and emerging adults achieve higher scores than both group of adolescents,  $z$ -score were from 3.29 to 4.43, significance levels less than .005, but didn't differ, in terms of this variable, from each other,  $z = 0.78, p = 1.00$ .

Thus, with one exception, the results of the analysis of variance were consistent with the hypotheses. Only the hypothesis of the strongest intensity of ruminative exploration in depth in emerging adulthood was not confirmed – the intensity was higher than in younger groups, but young working adults explored in depth in the same extent as studying emerging adults.

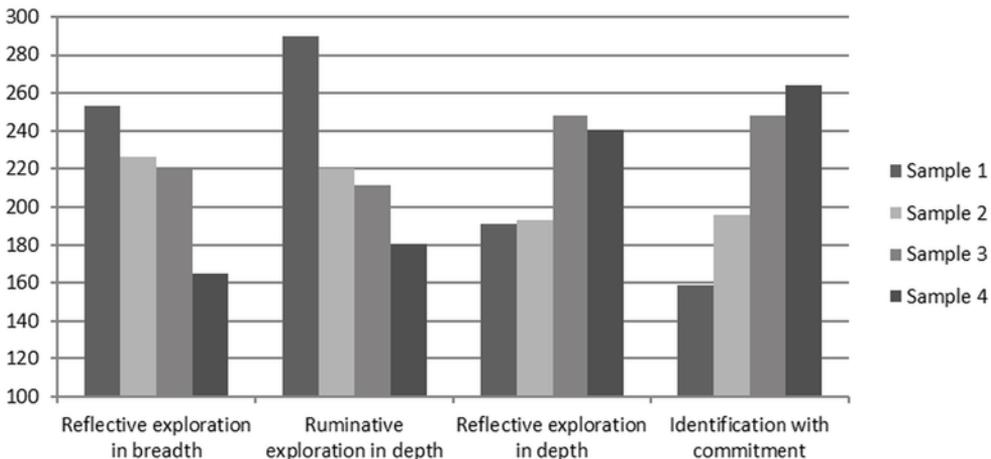


Fig. 2. Mean ranks in groups with different educational-professional context (or age) (Sample 1,  $n = 51$ ; Sample 2,  $n = 162$ , Sample 3,  $n = 178$ ; Sample 4,  $n = 49$ ).

### Associations of the identity dimensions with adjustment and private self-consciousness

Regression analysis and correlation analysis between the variables included in the model and external variables were performed using SPSS Statistics 20. Table 6 shows correlations between all identity dimensions and variables of adjustment and reflective and ruminative self-awareness in Sample 2 and Sample 3. With one exception, the results were consistent with our hypothesis. Reflecting exploration in depth positively correlated with indicators of well-being, while reflective exploration in breadth was not related to well-being. Both types of reflective exploration positively correlated with self-reflection. Both types of ruminative exploration negatively correlated with well-being and positively with distress and self-rumination. Higher identification with commitment was associated with higher level of well-being and lower distress. We assumed that commitment making was not related to indicators of adjustment, and indeed, in most cases it was true, however, in a group of emerging adults there was a weak positive correlation of this dimension with self-esteem. In conclusion, the results of the correlation analysis indicated satisfactory convergent and divergent accuracy of the model.

Table 6

*Correlation coefficients between the identity dimensions and external variables in Sample 2 (n = 162) and Sample 3 (n = 178)*

	ReEB	RuEB	CM	ReED	RuED	IC
Self-reflection	.41** / .26**	.28** / -.13*	.24** / .02	.36** / .31**	.12 / -.07	.06 / .12
Self-rumination	.14* / .25**	.46** / .26**	.11 / .09	.03 / -.05	.42** / .29**	-.11 / -.17*
Self-esteem	.08 / -.01	-.36** / -.34**	.10 / .15*	.29** / .29**	-.31** / -.31**	.21** / .33**
Positive affect	.06 / .02	-.27** / -.40**	.08 / .07	.20** / .45**	-.20** / -.41**	.20** / .37**
Negative affect	.10 / .03	.48** / .29**	-.05 / .03	-.08 / -.21**	.33** / .29**	-.16* / -.17*

*Note:* ReEB, Reflective exploration in breadth; RuEB, Ruminative exploration in breadth; CM, Commitment making; ReED, Reflective exploration in depth; RuED, Ruminative exploration in depth; IC, Identification with commitment. In each cell, the first coefficient relates to Sample 2, and the second to Sample 3.

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

Regression analysis was performed for models predicted well-being and distress from all the identity dimension. The standardized regression coefficients and coefficients of determination for each indicator of adjustment are presented in Table 7. As expected, we captured a unique relationship of ruminative exploration in breadth with adjustment. In the high school sample, ruminative exploration in breadth had significant predictive power for self-esteem,  $\beta = -0.34$ ;  $t = -3.69$ ;  $p < 0.001$ , positive affect,  $\beta = -0.26$ ,  $t = -2.59$ ,  $p = 0.01$ , and negative affect,  $\beta = -0.46$ ;  $t = 4.91$ ;  $p < 0.001$ , whereas in the university sample, this type of dependency did not occur. Ruminative exploration in depth was not related to the indicators of adjustment in both samples. Results of re-

gression analysis support the hypothesis that there are two types of ruminative exploration, ruminative exploration in breadth and ruminative exploration in depth.

Table 7

*Standardized regression coefficients for indicators of adjustment on identity dimensions and adjusted coefficients of determination in Sample 2 (n = 162) and Sample 3 (n = 178)*

	Standardized Betas						Adjusted R-squared
	ReEB	RuEB	CM	ReED	RuED	IC	
Self-esteem	.10 / -.08	-.34*** / -.12	-.08 / .14	.40*** / .14	-.16 / -.11	-.16 / -.12	.23 / .15
Positive affect	.07 / -.08	-.26** / -.12	-.03 / .03	.19 / .34***	-.06 / -.18	-.01 / .04	.09 / .26
Negative affect	-.02 / .04	.46*** / .18	-.01 / .04	-.10 / -.16	.06 / .16	.03 / .10	.22 / .09

*Note:* ReEB, Reflective exploration in breadth; RuEB, Ruminative exploration in breadth; CM, Commitment making; ReED, Reflective exploration in depth; RuED, Ruminative exploration in depth; IC, Identification with commitment. In each cell, the first coefficient relates to Sample 2, and the other one to Sample 3.

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

## Discussion

Our research was designed to verify the theoretical validity of the modified version of Luyckx et al.'s dual-cycle model of identity formation that take into account the two forms of ruminative exploration – ruminative exploration in breadth and ruminative exploration in depth. The original model and the modified model also differ in their definition of commitment making, which currently refers to making an initial decision relevant to identity issues. The results indicate that the model has a satisfactory validity.

Results of Confirmatory Factor Analysis indicate that the proposed model has satisfactory factorial validity. Its comparison with alternative models based on previous dual-cycle model versions has shown that the six-factor solution fits the data better than others. Most associations between the identity dimension were in line with expectations, indicating satisfactory internal validity. There were, however, some deviations from the hypotheses in groups differing in the educational-professional context (or age).

As predicted, in the university sample (emerging adults), reflective exploration in breadth and ruminative exploration in breadth were independent. Whereas, in the high school sample (older adolescents), both explorations in breadth had a common part of the variance. This may indicate that considering numerous options by an individual at an earlier age is associated with both openness and experiencing doubt and unpleasant emotions, while during emerging adulthood these processes are independent. Adolescents are under stronger pressure from the social environment and from conflicting influences and expectations by different groups (parents, peers, friends, media, etc.). They may have a problem with autonomously selecting different options and with making auto-

mous choices, due to still rapidly expanding cognitive processes, processes of emotional control, moral judgment, and even the development of the frontal lobes of the brain (Giedd, Blumenthal, Jeffries, Castellanos, Liu, Zijdenbos, Paus, & Rapoport, 1999). While in emerging adulthood, both biological and cognitive, emotional and moral maturity are attained at a much greater degree. Thus, differences in the correlations of reflective and ruminative exploration in breadth may be justified by many developmental changes specific to adolescents, while in later developmental stages it becomes more individualized. In research that took only one type of ruminative exploration into account, both in high school students, as well as university students, exploration in breadth was positively associated with ruminative exploration (Luyckx et al., 2008).

The second difference relates to the association between reflective and ruminative exploration in depth. As predicted, in adolescents, these dimensions were independent, while in the emerging adults a higher level of one of these dimensions is associated with a lower level of the other. We may search for its explanation by referring to studies on the relationships of private self-consciousness with personality traits (Trapnell & Campbell, 1999). Perhaps, there is a correlation between personality traits, particularly between neuroticism and openness to experience, and exploration in depth, which occurs simultaneously with the development and stabilization of personality at the age of a university student (McCrae & Costa, 1990). Thus, in this relationship, we pay attention to individual differences which could explain the negative relationship between explorations in depth in a group of university students.

Differences in associating the two dimensions of commitment between adolescents and emerging adults were also sighted. As expected, in the younger sample these dimensions correlated, but in the older sample they were independent. This independence may indicate that during the period of university studies people chose one clear strategy regardless of the identity activities – they either identify themselves with their commitments, or for various reasons, make interim choices. This group has more experience with commitment making. They have already passed through a period of radical support for chosen options, and may also have a greater insight into themselves and higher self-awareness. Thus, a better differentiation in commitment making and identification with commitments may result from an individual's awareness of necessarily having to revise life plans (Arnett, 2000), from the need to further crystallize self-image or obtain further information on the possible versions of the future (Bańka, 2007), from the fear of full commitment (Wolfe & Betz, 2004), or it may manifest a permanent disposition, i.e. indecisiveness (Osipow, 1999). These three results, although inconsistent with our hypotheses, point to the usefulness of the proposed distinction between ruminative exploration

in breadth and ruminative exploration in depth and a redefinition of commitment making, allowing us to obtain more precise information on identity development.

We observed expected differences in the identity processes between the groups differing with an educational-professional context (or age). Changing the context reduces the intensity of both reflective and ruminative exploration in breadth and increases the degree of identification with commitment. However, there was no significant difference in the intensity of identification with commitment between students and professionally active individuals. The last result may present an argument in the ongoing debate about the status of emerging adulthood (e.g. Arnett, 2000, 2001; Zagórska, Jelińska, Surma, & Lipska, 2012), indicating that in some features and identity processes, emerging adults are similar to young adults. For example, in reflective exploration in depth, it shows an increase in its intensity until the period of university studies; however, there are no differences in this respect between the two oldest groups. Similar results were also obtained in studies conducted in other parts of Poland, where studies were based on the five-factor model, and data were collected using DIDS (Brzezińska & Piotrowski, 2010a; Piotrowski, 2010).

As part of verifying the external validity, we confirmed the relationship between the identity dimensions and reflective and ruminative self-awareness, and the adjustment. There was one exception: in the emerging adult group a weak association of commitment making with self-esteem was observed. We also captured a varied effect of separate ruminative exploration dimensions on the individual's adjustment – only in high school sample ruminative exploration in breadth had an influence on lowering self-esteem, increasing negative emotions and reducing the intensity of positive emotions, but we did not see a relationship between ruminative exploration in depth and adjustment.

Summarizing, the proposed modification of the model may be an alternative to the original model which takes only one dimension of ruminative exploration into account (Luyckx et al., 2008). The advantage of our approach lies in restoring a dual-cycle sequential approach to identity formation, present in the model's first version (Luyckx et al., 2005), which introduces a logical order and facilitates analyses of both intensive development of identity in adolescence and early adulthood, as well as its changes later in life. Moreover, the distinction between two ruminative dimensions and a preliminary character of commitment making may facilitate further research on adaptive and maladaptive aspects of identity processes. Although many questions have already been asked, the proposed model may help to more fully answer some of them. For example, what impact on a person's functioning does a persistent exploration of a range of possible alternatives have? And what is the impact of a constant in depth analysis of decisions that have already been made? In which situations does the sole presence of an initial commitment have a normative, adaptive significance, and in which is this significance non-adaptive or even pathological? Which dispositional and situational

variables improve non-adaptive identity processes, and which protect against them? And of course, how do these associations proceed in different life stages?

We should also take notice of any doubts, limitations and suggestions. First, even though the existence of two ruminative dimensions of exploration has been justified empirically, due to their high intercorrelation, a less complex original model may present a more appropriate theoretical base for analysing a phenomenon which is to a lesser extent related to the non-adaptive aspect of identity processes. Secondly, we found that only ruminative exploration in breadth affected adjustment and this dependence is present only in the high school sample. However, we should remember that, in our study, only three adjustment indicators were used and the emerging adult group included only university students. We believe that it is worthwhile to continue the research on the proposed model by using a more complex operationalization of adjustment, taking into account groups that differ in age and educational-professional status because it may provide us with a more precise understanding of the maladaptive aspects of identity formation. At this stage, possible types or statuses of identity have not yet been investigated, and it is the configuration of the dimensions can significantly determine how an individual functions (Kroger & Marcia, 2011; Marcia, 1966; Marcia, 2002, Stephen, Fraser, & Marcia, 1992); therefore it would be appropriate to define, in future studies, which types of identity can be established based on the six-factor model. And finally, we should be aware of the limitation that generalizing results has. It is associated with the research procedure itself – our study had a cross-sectional character, only self-report measures were used, extreme age groups were not very numerous, and the samples included only Caucasian Poles. Thus, although the results seem to be promising, research should be continued basing on a longitudinal plan, on data from more numerous and diverse subject groups, and on different measuring tools which will allow for collecting more objective data.

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