



Brief report: The Utrecht-Management of Identity Commitments Scale (U-MICS): Gender and age measurement invariance and convergent validity of the Turkish version



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A B S T R A C T

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The purpose of this study was to evaluate the factor structure and convergent validity of the Turkish version of the Utrecht-Management of Identity Commitments Scale (U-MICS). Participants were 1201 (59.6% females) youth aged between 12 and 24 years ($M_{\text{age}} = 17.53$ years, $SD_{\text{age}} = 3.25$). Results indicated that the three-factor model consisting of commitment, in-depth exploration, and reconsideration of commitment provided a very good fit to the data and applied equally well to boys and girls as well as to three age groups (early adolescents, middle adolescents, and emerging adults). Significant relations between identity processes and self-concept clarity, personality, internalizing and externalizing problem behaviors, and parental relationships supported convergent validity. Thus, the Turkish version of U-MICS is a reliable tool for assessing identity in Turkish-speaking respondents.

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Identity development is a crucial developmental task for both adolescents and emerging adults (Arnett, 2000; Erikson, 1968). Marcia's (1966) identity status model has been largely used in the identity literature. However, in recent years, new approaches (Crocetti, Rubini, & Meeus, 2008; Luyckx et al., 2008) have been proposed to expand this model in order to focus on the process by which identity is formed and revised over time (Meeus, 2011).

In line with Meeus' (1996) previous work, Meeus, Crocetti and colleagues (Crocetti et al., 2008; Meeus, van de Schoot, Keijsers, Schwartz, & Branje, 2010) proposed a three-dimensional model comprising the identity processes of commitment, in-depth exploration, and reconsideration of commitment. *Commitment* refers to firm choices that individuals have made with regard to various identity domains and to the self-confidence they derive from these choices. *In-depth exploration* represents the extent to which adolescents think actively about their existing commitments and search for additional information about them. *Reconsideration of commitment* refers to the possibility of discarding or revising one's existing commitments when they are no longer satisfactory.

Each identity process is differently related to relevant correlates. In particular, three classes of concepts have been consistently related to identity processes: self and personality dimensions, internalizing and externalizing problems, and

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quality of interpersonal relationships (e.g., Kroger & Marcia, 2011). Specifically, commitment was positively associated with self-concept clarity, the personality dimensions of extroversion and emotional stability, and warm parent–adolescent relationships; whereas it was negatively associated with internalizing and externalizing problem behaviors (e.g., Crocetti et al., 2008; Crocetti, Schwartz, Fermani, & Meeus, 2010). Commitment, therefore, appeared to serve as an indicator of identity consolidation and of successful identity development. In-depth exploration was positively associated with the personality dimensions of agreeableness, conscientiousness, and openness to experience. However, in-depth exploration was negatively associated with self-concept clarity, emotional stability, and positively linked to internalizing symptoms. Thus, in-depth exploration appeared to have two facets, being related to curiosity but also to confusion and distress. Reconsideration of commitment was negatively associated with self-concept clarity, the personality dimensions of extraversion, agreeableness, conscientiousness, and positively associated with internalizing and externalizing problems. This indicates that releasing one's commitments is associated with disequilibrium and distress (e.g., Crocetti et al., 2008, 2010).

Gender and age account for differences in the identity formation process. Gender differences in identity formation have been detected more in adolescence than in emerging adulthood. Girls are ahead of boys in identity formation in early to middle adolescence, with boys catching up in middle to late adolescence (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2010). As a consequence, in emerging adulthood gender differences are more likely to be non-significant or small in effect sizes (Crocetti, Sica, Schwartz, Serafini, & Meeus, 2013). These findings can be explained by the fact that physical and cognitive maturation occurs earlier in girls than in boys (Kroger, 1997). For what concern age trends, longitudinal studies suggested that personal identity develops progressively during adolescence (with identity progressions toward greater identity certainty being more common than identity regressions), but they indicated also that a substantial number of individuals do not change their identity (for a review see Meeus, 2011).

In order to measure the three identity processes, Meeus developed the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008). Extant validation studies of the U-MICS (Crocetti et al., 2008, 2010; Zimmermann, Biermann, Mantzouranis, Genoud, & Crocetti, 2012) proved a clear three-factor structure in Italian and French-speaking adolescents, replicated across gender, age, and ethnic groups, and consistent convergent validity.

In this study, we sought to further test the applicability of the U-MICS by testing the psychometric properties of the Turkish version. Thus, we (a) tested the fit of the three-factor model; (b) examined gender and age measurement invariance; (c) compared gender and age identity mean scores; and (d) analyzed convergent validity.

Method

Participants and procedure

Participants were 1201 (59.6% females) Turkish youth aged between 12 and 24 years ($M_{\text{age}} = 17.53$ years, $SD_{\text{age}} = 3.25$). The sample consisted of three age groups. An early adolescent group (age range 12–14 years; $M_{\text{age}} = 13.09$, $SD_{\text{age}} = .82$) consisted of 212 (54.5% females) middle school students (from 6th through 8th grades). A middle adolescent group (age range 15–18 years; $M_{\text{age}} = 16.42$, $SD_{\text{age}} = 1.01$) consisted of 568 (59.5% females) high school students (from 9th through 12th grades). An emerging adult group (age range 19–24 years; $M_{\text{age}} = 21.28$, $SD_{\text{age}} = 1.66$) comprised 421 (62.5% females) university students. The ethnic and socio-economic composition of these three age groups was similar: participants were Turkish middle-class youth living in urban areas (Aksaray, Kirikkale, Mersin, and Diyarbakir).

Participation was voluntary and anonymity was guaranteed. Questionnaires were administered during a regular class period and informed consent was obtained from participants prior to initiating the study.

Measures

Participants filled a self-report questionnaire including socio-demographic questions and scaled aimed at assessing identity and the relevant correlates under investigation. In order to facilitate comparisons between results of the current study and evidence available in the literature, we selected for each construct taken into account measures already used in prior studies that examined the convergent validity of the U-MICS (Crocetti et al., 2008, 2010). Measures were translated from English to Turkish by means of the back translation method. Specifically, a team including four academics translated independently measures from English to Turkish. Any discrepancies among the four versions were discussed until a consensus was reached to develop a final Turkish version of each measure. Then, two bilingual translators back translated the Turkish versions to English. This final back translation procedure provided English versions identical to the original versions of each scale.

Identity

We used the U-MICS (Crocetti et al., 2008, 2010) to measure identity dimensions. This scale consists of 13 items (five for commitment, five for in-depth exploration, and three for reconsideration of commitment) rated on a 5-point Likert scale ranging from 1 (*completely untrue*) to 5 (*completely true*). The same items can be filled out to assess identity dimensions in different domains. In the current study, ideological (i.e., education) and interpersonal (i.e., friendships) domains were considered and in line with previous validation studies (e.g., Crocetti et al., 2010; Zimmermann et al., 2012) these two

Table 1
Fit indices for the U-MICS.

	Model fit indices				Model comparisons	
	χ^2	df	CFI	RMSEA (90%CI)	Δ CFI	Δ RMSEA
U-MICS factor structure (Total sample = 1201)						
1. One-factor solution	3304.961	27	.555	.318 (.309–.327)		
2. Two-factor solution (compared to 1)	1734.149	26	.768	.234 (.225–.243)	.213	–.084
3. Three-factor model (compared to 2)	112.300	24	.988	.055 (.045–.066)	.220	–.179
Gender invariance (Males = 485; Females = 716)						
1. Configural invariance	156.339	48	.985	.061 (.051–.072)		
2. Metric invariance (compared to 1)	164.710	54	.985	.058 (.048–.069)	.000	–.003
3. Full scalar invariance (compared to 2)	193.263	60	.982	.061 (.051–.071)	–.003	.003
4. Covariance invariance (compared to 2)	175.956	57	.984	.059 (.049–.069)	–.001	.0001
Age invariance (Early adolescents = 212; Middle adolescents = 568; Emerging adults = 421)						
1. Configural invariance	240.748	72	.977	.077 (.066–.087)		
2. Metric invariance (compared to 1)	268.796	84	.975	.074 (.064–.084)	–.002	–.003
3. Full scalar invariance (compared to 2)	310.076	96	.971	.075 (.065–.084)	–.004	.001
4. Covariance invariance (compared to 2)	317.857	90	.969	.080 (.070–.089)	–.006	.006

Note. χ^2 = Chi-Square; df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation and 90% Confidence Interval; Δ = Change in the parameter.

domains were combined for obtaining overall identity score. Cronbach's alphas were .87 for commitment, .80 for in-depth exploration, and .79 for reconsideration of commitment.

Self-concept clarity

We measured this construct with the Self-Concept Clarity scale (SCC; Campbell et al., 1996). It consists of 12 items rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha was .81.

Personality

We measured personality with a shortened (Vermulst & Gerris, 2005) Big Five questionnaire (Goldberg, 1992). This scale consists of 30 items rated on a 7-point Likert scale ranging from 1 (*does not apply to me at all*) to 7 (*applies to me very well*). Cronbach's alphas were .79, .73, .81, .75, and .69, for extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience, respectively.

Depression

We assessed depression through the Children's Depression Inventory (CDI; Kovacs, 1985). This scale consists of 27 items rated on a 3-point scale ranging from 1 (*false*) to 3 (*very true*). Cronbach's alpha was .91.

Generalized anxiety

This construct was measured with the Generalized Anxiety Disorder (GAD) subscale of the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997). The GAD subscale consists of 9 items rated on a 3-point scale ranging from 0 (*almost never*) to 2 (*often*). Cronbach's alpha was .85.

Aggression

We measured aggression with the Direct and Indirect Aggression scales (DIAS; Björkqvist, Lagerspetz, & Osterman, 1992). This scale consists of 23 items rated on a 4-point scale ranging from 0 (*never*) to 3 (*very often*). In the present study, the total aggression score was used and Cronbach's alpha was .89.

Parental trust

We used the trust subscales of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987; Nadaraja, McGee, & Stanton, 1992). These subscales consist of 3 items that were completed by participants with reference to both parents, using a 6-point scale ranging from 1 (*completely untrue*) to 6 (*completely true*). Cronbach's alphas were .78 and .77 for paternal and maternal trust, respectively.

Results and discussion

Model fit of the three-factor model

In order to test the factor structure of the Turkish version of the U-MICS, we conducted Confirmatory Factor Analyses (CFAs) with Maximum Likelihood estimation in Mplus 7.11 (Muthén & Muthén, 1998–2012). In line with previous U-MICS validation studies (e.g., Crocetti et al., 2008, 2010) we constructed three parcels of items for each construct and used these as

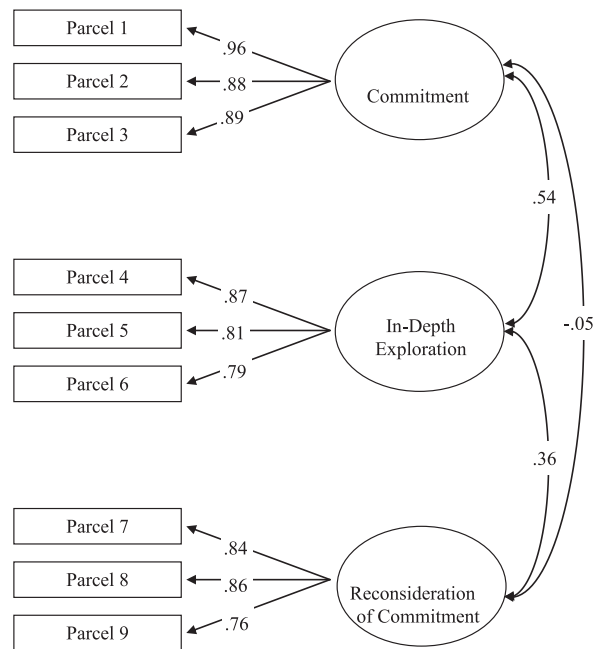


Fig. 1. Standardized solution of the three-factor model of the U-MICS. Note. All factor-loadings and correlations are significant at $p < .001$ (except the correlation between Commitment and Reconsideration of Commitment that was not significant).

indicators of the latent variables, resulting in 9 parcels. A good model fit was indicated by a Comparative Fit Index (CFI) higher than .90 and a Root Mean Square Error of Approximation (RMSEA) lower than .08 (Kline, 2010).

As reported in Table 1, fit indices indicated that the three-factor model fit the data very well, whereas the one-factor (with one latent general identity factor) and the two-factor (with two latent variables, namely commitment and a general exploration factor on which indicators of in-depth exploration and reconsideration of commitment loaded) models were not acceptable. Fig. 1 displays the 3-factor standardized solution for the U-MICS. Commitment was positively related to in-depth exploration but it was not significantly related to reconsideration of commitment. This positive relation between commitment and in-depth exploration is at the basis of the maintenance cycle (Meeus, 2011), that serves to maintain a sense of identity coherence or synthesis. Finally, in-depth exploration was positively related to reconsideration of commitment, suggesting that these two processes are part of a dynamic evaluation of one's current commitments (Crocetti et al., 2008).

Measurement invariance tests

We tested gender and age measurement invariance through consequential multi-group CFAs. We tested different levels of measurement invariance (Chen, 2007): (a) configural invariance (the same number of factors and pattern of fixed and freely estimated parameters hold across groups); (b) metric invariance (equivalence of factor loadings indicating that respondents from multiple groups attribute the same meaning to the latent construct of interest); and (c) scalar invariance (invariance of both factor loadings and item intercepts, indicating that the meaning of the construct and the levels of the underlying items are equal across groups). Additionally, we also tested invariance of covariances to examine whether associations between identity processes were comparable across groups.

In order to determine significant differences between models we followed Chen's (2007) recommendations according to which a $\Delta CFI \geq -.010$, supplemented by $\Delta RMSEA \geq .015$ would be indicative of non-invariance. For both gender and age, results (Table 1) clearly indicated the presence of configural, metric, scalar, and covariance invariance. Thus, the U-MICS can be applied to compare identity across Turkish gender and age groups.

Table 2

Mean scores (and standard deviations) of identity processes by gender and age.

	Gender differences				Age differences				
	Males <i>n</i> = 485	Females <i>n</i> = 716	<i>F</i> (1, 1193)	η^2	Early adolescents <i>n</i> = 212	Middle adolescents <i>n</i> = 568	Emerging adults <i>n</i> = 421	<i>F</i> (2, 1193)	η^2
Commitment	3.74 (0.74)	3.96 (0.64)	30.08***	.03	4.09 (0.72) ^b	3.81 (0.72) ^a	3.84 (0.61) ^a	14.99***	.02
In-depth exploration	3.18 (0.64)	3.28 (0.64)	10.32**	.01	3.50 (0.70) ^b	3.17 (0.68) ^a	3.19 (0.51) ^a	22.72***	.04
Reconsideration of commitment	2.70 (0.78)	2.47 (0.85)	15.42***	.01	2.87 (0.87) ^c	2.70 (0.80) ^b	2.24 (0.75) ^a	51.22***	.08

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. A cluster mean is significantly different from another mean if they have different superscripts.

Table 3

Standardized betas and portion explained variance for associations between identity dimensions and other correlates (controlling for gender and age).

	Self	Personality					Problem behavior			Parental trust	
	SCC	EXT	AGR	CON	ES	OPEN	DEP	GAD	AGG	PAT	MOT
Commitment	.19*** (.17**)	.10** (.12**)	.26*** (.32**)	.09** (.19**)	.21*** (.15**)	.13*** (.17**)	-.26*** (-.24**)	-.21*** (-.18**)	-.10** (-.11**)	.12*** (.15**)	.16*** (.17**)
In-depth exploration	-.04 (-.02)	.00 (.03)	.09** (.24**)	.16*** (.21**)	-.11** (-.03)	.11** (.22**)	.02 (-.01)	.08* (.00)	.00 (-.00)	.11** (.13**)	.07* (.11**)
Reconsideration of commitment	-.25*** (-.27**)	-.10** (-.09**)	.02 (.04)	.00 (.05)	-.12*** (-.10**)	.15*** (.18**)	.23*** (.27**)	.17*** (.12**)	.13*** (.16**)	-.07* (-.02)	-.09** (-.02)
R ²	.10***	.03***	.11***	.05***	.08***	.08***	.14***	.10***	.04***	.05***	.04***

Note. Bivariate Pearson's correlations in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$. SCC = Self-concept clarity, EXT = Extroversion, AGR = Agreeableness, CON = Conscientiousness, ES = Emotional stability, OPEN = Openness to experience, DEP = Depressive symptoms, GAD = Generalized Anxiety symptoms, AGG = Aggression, PAT = Paternal trust, MOT = Maternal trust.

Gender and age differences in mean scores

After having established gender and age measurement invariance, we could analyze whether mean scores on each identity process varied as a function of gender and age. To this end, we performed a Multivariate Analysis of Variance on the three identity processes with gender and age as independent variables. Findings indicated a main effect of gender, Wilks' $\lambda = .96$, $F(3, 1193) = 16.09$, $p < .001$, $\eta^2 = .04$, and age, Wilks' $\lambda = .88$, $F(6, 2386) = 25.60$, $p < .001$, $\eta^2 = .06$, whereas the gender \times age interaction was not statistically significant, Wilks' $\lambda = .99$, $F(6, 2386) = 1.30$, $p = .25$, $\eta^2 = .00$. Results of follow-up univariate analyses are reported in Table 2. As can be seen, girls scored higher than boys on commitment and in-depth exploration, while boys scored higher than girls on reconsideration of commitment. Age comparisons indicated that early adolescents scored higher on commitment and in-depth exploration than both middle adolescents and emerging adults. On reconsideration of commitment a more differentiated pattern was detected, with early adolescents scoring the highest, middle adolescents reporting intermediate scores, and emerging adults scoring the lowest.

Convergent validity

Pearson correlations and regression analyses were used to evaluate relations between identity dimensions and relevant correlates (i.e. self-concept clarity, personality dimensions, internalizing and externalizing problem behaviors, and family relations). Results of the regression analyses (Table 3) in which associations between each identity process and correlates were controlled for the other two identity dimensions and for gender and age, indicated that the three identity dimensions explained significant portions of variance for all of the variables examined. Consistent with previous studies (Crocetti et al., 2008, 2010), commitment was positively related to self-concept clarity, personality dimensions, paternal and maternal trust, and negatively related to depressive and anxiety symptoms, and aggression, suggesting that commitment reflects successful identity formation. In-depth exploration was positively related to agreeableness, conscientiousness, openness to experience, anxiety symptoms, paternal and maternal trust, and negatively related to emotional stability suggesting that this dimension has two facets (Crocetti et al., 2010; Luyckx et al., 2008). As expected, reconsideration of commitment was negatively related to self-concept clarity, extraversion, emotional stability, paternal and maternal trust, and positively related to openness to experience, depressive and anxiety symptoms, and aggression. Reconsideration implies abandoning one's existing commitments and searching new identity alternatives but this process is associated with distress and problem behaviors (Crocetti et al., 2008, 2010).

Conclusion

In the research field on identity formation there is an increasing call for international studies, aimed at providing a broader understanding of psychological processes in various non-Western cultural contexts (Berman, 2011; Schwartz, Zamboanga, Meca, & Ritchie, 2012). The present study proceeds in this direction, with a focus on identity formation in Turkish youth. Turkey is a country that represents a combination of traditional cultural values and the influence of Western values related to modernization (Kagitcibasi, 2007).

Up to now, the U-MICS has been validated for its use in Western contexts (i.e., the Netherlands, Italy, Switzerland; Crocetti et al., 2008, 2010; Zimmermann et al., 2012). The present study showed that the U-MICS is a reliable tool for assessing identity also in Turkish-speaking respondents from different gender and age groups. In fact, current findings provided support to the three-factor structure, gender and age measurement invariance, and convergent validity (as indicated by meaningful associations between identity processes and several correlates including self and personality, internalizing and externalizing problem behaviors, and parental dimensions) of the Turkish version of the U-MICS.

Furthermore, in this study we found gender differences in the endorsement of each identity process that were consistent with prior studies, in showing that girls reported a more stable identity than boys (e.g., Meeus et al., 2010). Interestingly, these findings applied to each age group under consideration, although the percentage of variance explained by gender differences was small. Additionally, age differences revealed a pattern of findings that was to some extent different from the one documented in the literature (Meeus, 2011). In fact, the decreasing level of reconsideration of commitment is in line with previous studies showing that when individuals grow up they become increasingly certain about their choices (e.g., Klimstra et al., 2010), whereas the decreasing levels of commitment and in-depth exploration suggest that, at the same time, participants have difficulties in maintaining a firm sense of their identity. Of course, these findings should be taken with caution, given their cross-sectional nature. However, they suggest that identity formation for contemporary Turkish youth, coming to age in a society characterized by a mix of traditional and modern values (Kagitcibasi, 2007), might be particularly challenging. Future longitudinal studies are strongly needed to clarify barriers but also resources that might characterize the identity development of Turkish adolescents and emerging adults.

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