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Brief report

## Validation of the Arabic and Hebrew versions of the Utrecht-Management of Identity Commitments Scale (U-MICS)

Elisabetta Crocetti<sup>a,\*</sup>, Maya Benish-Weisman<sup>b</sup>, Kristina L. McDonald<sup>c</sup>

<sup>a</sup> Alma Mater Studiorum University of Bologna, Italy

<sup>b</sup> University of Haifa, Israel

<sup>c</sup> University of Alabama, Tuscaloosa, United States



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### ABSTRACT

**Introduction:** The Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti, Rubini, & Meeus, 2008) is a self-report scale that can be applied to measure three identity processes (commitment, in-depth exploration, and reconsideration of commitment) in specific domains. The current study was aimed at testing the applicability of the U-MICS in two new languages: Arabic and Hebrew. Specifically, we (a) tested the fit of the three-factor structure; (b) examined measurement invariance of the Arabic and Hebrew versions; and (c) investigated convergent validity by relating the identity processes (commitment, in-depth exploration, and reconsideration of commitment) to multiple indicators of psychosocial adjustment (self-esteem, prosocial behaviors, and delinquency).

**Methods:** Participants were 314 Arab and 386 Jewish adolescents living in Israel ( $N = 770$ ; 54.7% girls;  $M_{age} = 13.79$ ,  $SD_{age} = 0.51$ , age-range = 12–15). Assessments of identity processes, self-esteem, and delinquency were collected using self-report measures, while prosocial behaviors were measured through peer nominations.

**Results:** The results highlighted that (a) the three-factor model fit the data excellently in the total sample as well as in Arab and Jewish samples; (b) hierarchical levels of measurement invariance (configural, metric, and scalar), as well as invariance of covariances, could be clearly established; and (c) convergent validity was demonstrated by showing meaningful associations between identity processes and indicators of psychosocial functioning.

**Conclusions:** This study indicates that the U-MICS is a reliable instrument for assessing identity processes in Arabic and Hebrew-speaking adolescents.

## 1. Introduction

Adolescence is a developmental period characterized by substantial physical, cognitive, and social changes that stimulate identity development. The identity literature rooted in Erikson's (1950) psychosocial theory and Marcia's (1966) identity status paradigm underwent significant improvements in the last decades (cf. Crocetti & Salmela-Aro, 2018). Such advancements included the development of process-models of identity which focused on different ways youth can explore identity options and choose their commitments (see Meeus, 2011, 2018 for reviews). According to the three-factor process-oriented model (Crocetti et al., 2008), the identity formation cycle is based on the interplay between *commitment* (i.e., choices individuals make in various developmental domains and the self-confidence they derive from these choices) and *reconsideration of commitment* (i.e., comparison of present

\* Corresponding author. Department of Psychology, Alma Mater Studiorum University of Bologna, Viale Europa 115, 47521, Cesena, FC, Italy.  
E-mail address: [elisabetta.crocetti@unibo.it](mailto:elisabetta.crocetti@unibo.it) (E. Crocetti).

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commitments with possible alternative commitments because the former are no longer satisfactory). The identity maintenance (or consolidation) cycle is based on the interplay between *commitment* and *in-depth exploration* (i.e., the extent to which individuals think actively about the commitments they have made, reflecting on their choices, and talking with others about them).

In line with the different roles they play, each identity process has distinct associations with adolescent psychosocial development. Specifically, commitment has been positively related to nurturing parent-adolescent relationships, resilient personality characteristics, such as extraversion and emotional stability, as well as several indicators of mental health and adjustment, including high levels of self-esteem and well-being and low levels of internalizing symptoms and externalizing problem behaviors (Crocetti, Branje, Rubini, Koot, & Meeus, 2017; Crocetti et al., 2008; Mercer, Crocetti, Branje, van Lier, & Meeus, 2017; Sugimura et al., 2015). In-depth exploration has been found to be positively associated with agreeableness, conscientiousness, openness to experience, warm family relationships, and negatively related to delinquency (Mercer et al., 2017; Morsünbül, Crocetti, Cok, & Meeus, 2014). However, in-depth exploration is not necessarily a marker of positive adjustment; it has also been found to be negatively related to emotional stability and positively linked to internalizing symptoms (Crocetti et al., 2017; Hatano, Sugimura, & Crocetti, 2016; Mercer et al., 2017). Finally, reconsideration of commitment is negatively associated with self-esteem, agreeableness, conscientiousness, and openness to experience. Reconsideration has also been associated with poor family relationships and positively associated with both internalizing and externalizing problem behaviors (Crocetti et al., 2017, 2008; Hatano et al., 2016; Mercer et al., 2017). In synthesis, commitment appears to serve as an indicator of healthy identity development; in-depth exploration assumes the character of a double-edged sword, as it may indicate curiosity but also some distress; and reconsideration of commitment appears to be intertwined with disequilibrium and maladjustment, assuming the character of an identity crisis (see Crocetti, 2017, 2018 for reviews).

To assess these three identity processes, Meeus designed the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008), a self-report scale that can be applied to measure commitment, in-depth exploration, and reconsideration of commitment in specific identity domains (e.g., educational identity, interpersonal identity). The U-MICS, initially developed in Dutch language (Crocetti et al., 2008), has been validated for being used in several other languages, such as German (Schubach, Zimmermann, Noack, & Neyer, 2017), French (Zimmermann, Mahaim, Mantzouranis, Genoud, & Crocetti, 2012), Italian (Crocetti, Schwartz, Fermani, & Meeus, 2010), Spanish (Llorent & Álamo, 2018), Polish and Romanian (Karaś, Ciecuch, Negru, & Crocetti, 2015), Turkish (Morsünbül et al., 2014), Bulgarian, Albanian, Czech, Slovenian (Dimitrova et al., 2016), Portuguese, Chinese, and Japanese (Crocetti et al., 2015). Importantly, these validation studies indicated that the U-MICS has a robust three-factor structure, which is invariant across gender, age, ethnic, and national groups. Furthermore, they demonstrated convergent validity of the U-MICS by showing that the three identity processes correlate in a meaningful way with multiple indicators of psychosocial adjustment.

Building upon this evidence, the current study sought to test the applicability of the U-MICS in two new languages: Arabic and Hebrew. Specifically, we (a) tested the fit of the three-factor model; (b) examined measurement invariance of the two versions; and (c) investigated convergent validity by relating the identity processes (commitment, in-depth exploration, and reconsideration of commitment) to multiple indicators of psychosocial adjustment (self-esteem, prosocial behaviors, and delinquency).

## 2. Method

Participants were 314 Arab and 386 Jewish adolescents living in Israel ( $N = 770$ ; 54.7% girls;  $M_{\text{age}} = 13.79$ ,  $SD_{\text{age}} = 0.51$ , age-range = 12–15). They were 8th-grade students recruited from five public secular mixed-gender schools in the north of Israel (three Hebrew speaking schools and two Arabic speaking schools). Regarding family background, 65% of Jewish and 32% of Arab adolescents reported that their mothers had college degrees, and 56% of Jewish and 23% of Arab respondents reported that their fathers had college degrees.

Overall, the average percentage of missing data across all study items was 10.88%. Little's (1988) Missing Completely at Random (MCAR) test on the variables of interest yielded a normed  $\chi^2$  ( $\chi^2/\text{df}$ ) of 1.33. According to guidelines by Bollen (1989), this index, which can be used to correct for sensitivity of the  $\chi^2$  to large sample size, is low and suggests that data are missing at random.

### 2.1. Procedure

The study was conducted in accordance with the requirements of the ethical review board of the University of Haifa. Consent forms were sent home to the parents of all 8th grade students in participating schools. Students whose parents consented to their participation (over 95%) completed surveys under the supervision of a research team member during group-administered data collection sessions. Students received small, attractive incentives (novelty pens or pencils) for their participation.

### 2.2. Measures

**Identity processes.** Identity processes were measured using the U-MICS (Crocetti et al., 2008). It consists of 13 items repeated for two domains (educational and interpersonal identity) with a response scale ranging from 1 (completely untrue) to 5 (completely true). Sample items include: “My education/best friend gives me certainty in life” (commitment; 10 items), “I think a lot about my education/best friend” (in-depth exploration; 10 items), and “I often think it would be better to try to find a different education/best friend” (reconsideration of commitment; 6 items). Responses across the two domains can be averaged to measure overall identity. For the current study, the English version of the U-MICS was translated to Arabic and Hebrew in a double translation procedure by two bilingual translators following the recommended procedures for the establishment of linguistic equivalence. The complete Arabic and Hebrew versions of the U-MICS are available in the Supplementary materials. Cronbach's alphas were .88 and .88 for commitment,

.87 and .80 for in-depth exploration, and .86 and .80 for reconsideration of commitment in the Arab and Jewish samples, respectively.

**Self-esteem.** Self-esteem was measured with the Rosenberg Self-Esteem Scale (Rosenberg, 1965; for the Hebrew version, see; Benish-Weisman, Daniel, Schiefer, Möllering, & Knafo-Noam, 2015; for the Arabic version, see; Daniel, Boehnke, & Knafo-Noam, 2016). It contains 10 items (e.g., “I feel that I have a number of good qualities”), with a response scale ranging from 1 (strongly disagree) to 4 (strongly agree). Cronbach's alphas were .68 and .84 in the Arab and Jewish samples, respectively.

**Prosocial behavior.** Peer nominations (Benish-Weisman, 2015; Cillessen, 2009) were used to assess prosocial behavior. Students were given a roster listing the names of their classmates and were asked to circle the names of classmates who fit three prosocial behaviors (i.e., “cooperates”, “helpful”, and “kind”). A student's score for each behavior item was computed as the number of nominations for that item the student received divided by the total number of classmates who could have nominated him/her for that item. The final scores for each item were standardized within the class and averaged to create one score for prosocial behavior. Cronbach's alphas were .83 and .80 in the Arab and Jewish samples, respectively.

**Delinquency.** Participants responded to 27 items compiled from Baker's (1986) Adolescent Delinquency Measure. Items include content about delinquent activities (e.g., destroyed property, taken something that did not belong to you, skipped school without a legitimate excuse) and parental defiance (e.g., shouted at your mother or father, defied parents' wishes). Participants responded to each item by rating how frequently they had been involved in the activity or circumstance on a scale from 1 (never) to 5 (very often). Cronbach's alphas were .91 and .96 in the Arab and Jewish samples, respectively.

### 3. Results<sup>1</sup>

#### 3.1. Testing the three-factor structure

To test the three-factor structure of the U-MICS, we performed Confirmatory Factor Analyses (CFAs) in *Mplus* 8.3 (Muthén & Muthén, 1998-2018), using the Maximum Likelihood Robust (MLR) estimation. We conducted analyses in the total sample, as well as in Arab and Jewish samples. In line with previous U-MICS validation studies (e.g., Dimitrova et al., 2016), we constructed three parcels of items for each construct and used them as indicators of the three latent variables (i.e., commitment, in-depth exploration, reconsideration of commitment). We tested model fit using the Comparative Fit Index (CFI), with values higher than 0.90 indicative of an acceptable fit and values higher than 0.95 suggesting an excellent fit; and the Root Mean Square Error of Approximation (RMSEA), with values below 0.08 indicative of an acceptable fit and values less than 0.05 representing a good fit (Byrne, 2012). Results indicated that the three-factor model fit the data excellently in the total sample as well as in Arab and Jewish samples (Table 1).

#### 3.2. Establishing measurement invariance

We examined measurement invariance across the two groups (Arab and Jewish samples) by conducting multi-group CFAs (e.g., Van de Schoot, Lugtig, & Hox, 2012). We tested for (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); and (c) scalar invariance (invariance of both factor loadings and item intercepts). Additionally, we also tested invariance of covariances to examine whether associations between identity processes were comparable across groups. We tested differences between models representing the various levels of invariance considering changes in fit indices, with a  $\Delta\text{CFI} \geq -0.010$  supplemented by  $\Delta\text{RMSEA} \geq 0.015$  indicative of non-invariance (Chen, 2007, p. 501). Results indicated that configural, metric, and scalar invariance could be clearly established, as could invariance of covariances (Table 1).

#### 3.3. Examining convergent validity

Finally, to examine convergent validity, we investigated how identity processes were related to psychosocial functioning in a structural equation model in which commitment, in-depth exploration, and reconsideration of commitment were the exogenous variables and self-esteem, delinquency, and prosocial behaviors were the endogenous variables. Results for the total sample indicated that commitment was positively related to self-esteem and negatively linked to delinquency, while in-depth exploration was negatively related to both self-esteem and delinquency, and reconsideration of commitment was negatively associated with self-esteem and prosocial behaviors, and positively related to delinquency (Table 2). By using a multi-group approach to model these associations in both Arab and Jewish sample, we found that these findings were largely consistent across the two groups.

### 4. Conclusion

In this study, we tested for the first time the properties of the Arabic and Hebrew versions of the U-MICS. The findings highlighted that the three-factor structure of the U-MICS, measuring the identity processes of commitment, in-depth exploration, and reconsideration of commitment (Crocetti et al., 2008), fit the data very well. Furthermore, hierarchical levels of measurement

<sup>1</sup> The results were replicated when the (educational and interpersonal) identity domains were analyzed separately.

**Table 1**  
Fit indices for the U-MICS three-factor model and tests of measurement invariance.

	Model fit				Model comparisons		
	$\chi^2$	df	CFI	RMSEA [90% CI]	Models	$\Delta$ CFI	$\Delta$ RMSEA
<b>CFAs – Three-factor model</b>							
Arab sample	50.713	24	.982	.060 [.036, .082]			
Jewish sample	59.207	24	.979	.062 [.042, .082]			
Total	78.879	24	.984	.057 [.043, .071]			
<b>Measurement invariance</b>							
M1. Configural	109.601	48	.980	.061 [.046, .076]			
M2. Metric	116.867	54	.980	.058 [.043, .072]	M2-M1	.000	-.003
M3. Scalar	146.818	60	.972	.064 [.051, .078]	M3-M2	-.008	.006
M4. Covariances invariance	126.409	57	.978	.059 [.045, .073]	M4-M2	-.002	.001

Note. CFA = Confirmatory Factor Analysis.  $\chi^2$  = Chi-Square; df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation and 90% Confidence Interval;  $\Delta$  = Change in the parameter.

**Table 2**  
Associations between identity processes and psychosocial functioning: Standardized coefficients and portions of explained variance.

	Self-esteem			Prosocial behaviors			Delinquency		
	Arab	Jewish	Total	Arab	Jewish	Total	Arab	Jewish	Total
Commitment	<b>.26**</b>	<b>.45***</b>	<b>.44***</b>	.01	.12	.07	-.35***	-.12	-.25***
In-depth exploration	<b>.11</b>	<b>-.19***</b>	<b>-.13*</b>	.07	.14*	.10	-.08	-.17*	-.15*
Reconsideration of commitment	<b>-.21***</b>	<b>-.18***</b>	<b>-.20***</b>	<b>-.14*</b>	-.06	<b>-.12**</b>	<b>.03</b>	<b>.29***</b>	<b>.13**</b>
R <sup>2</sup>	<b>.13***</b>	<b>.20***</b>	<b>.16***</b>	<b>.02</b>	<b>.05*</b>	<b>.03*</b>	<b>.17***</b>	<b>.12**</b>	<b>.13***</b>

Note. \*p < .05, \*\*p < .01, \*\*\*p < .001. Coefficients in bold were significantly different according to the Wald test (p < .05).

invariance (configural, metric, and scalar), as well as invariance of covariances, could be clearly established, in line with extant comparisons involving multiple ethnic or national groups (Crocetti et al., 2015; Dimitrova et al., 2016). Finally, convergent validity of the U-MICS was demonstrated by showing meaningful associations between identity processes on one side and indicators of psychosocial functioning (self-esteem, prosocial behaviors, and delinquency) on the other side (Crocetti, 2017, 2018). Overall, this study indicates that the U-MICS is a reliable instrument for assessing identity processes in Arabic and Hebrew-speaking adolescents.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.adolescence.2019.12.006>.

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