International Journal of Adolescence and Youth

A cross-cultural comparison of the self-determination construct in Italian and American adolescents

Maria Cristina Ginevra, Laura Nota, Salvatore Soresi, Karrie A. Shogren, Michael L. Wehmeyer & Todd D. Little

Routledge
Taylor & Francis Group

A cross-cultural comparison of the self-determination construct in Italian and American adolescents

Maria Cristina Ginevra[a], Laura Nota[a], Salvatore Soresi[a], Karrie A. Shogren[b]*[†],
Michael L. Wehmeyer[c] and Todd D. Little[c]

[a]University of Padua, Padua, Italy; [b]University of Illinois, 1310 South Sixth Street, Champaign,
IL 61820, USA; [c]University of Kansas, 1200 Sunnyside Avenue, Lawrence, KS 66045, USA

The functional theory of self-determination (*f*SDT) defines and operationalises self-determination within a human agentic context. It emerged from research on adolescents with disabilities, however has been increasingly applied to youth without disabilities. While comparability has been evaluated in youth with and without disabilities, it has not been explored across cultures. The purpose of this study was to explore the cross-cultural comparability of the *f*SDT in a sample of Italian and American adolescents. We were specifically interested in examining the universal aspects of the self-determination construct, as well as specific differences in the operationalisation of self-determination across cultures. The findings tentatively suggest that the construct of self-determination is comparable across Italian and American adolescents; however, there are specific differences in the measurement and operationalisation of self-determination across cultures. Directions for future research are discussed.

Keywords: self-determination; adolescence; culture

Introduction

Self-determination is a general psychological construct, conceptualised within the organising structure of theories of human agency (Wehmeyer, Little, & Sergeant, 2009). Such theories refer to self- (vs. other-) caused action – to people acting volitionally – based on their own will. Human agency refers to the sense of personal empowerment involving both knowing and having what it takes to achieve goals. Human agentic theories share the meta-theoretical view that organismic aspirations drive human behaviours. An organismic perspective of self-determination portrays people as active contributors to, or 'authors' of, their behaviour, where behaviour is self-regulated and goal-directed. This perspective provides a compelling foundation for examining and facilitating the degree to which people become self-determined and the impact of that on the pursuit of optimal human functioning and well-being. Further, an organismic approach to self-determination requires an explicit focus on the interface between the self and context (Wehmeyer & Little, 2009).

One theoretical framework that defines and operationalises self-determination within a human agentic context is the functional theory of self-determination (*f*SDT) (Wehmeyer, 2003). Emerging from research on people with disabilities, *f*SDT proposes that self-determination is a dispositional characteristic of individuals, and defines self-determined behaviour as 'volitional actions that enable one to act as the primary causal agent in one's life and to maintain or improve one's quality of life' (Wehmeyer, 2005, p. 117).

*Corresponding author. Email: karrieshogren@gmail.com
†Current address: University of Kansas, Beach Center on Disability, Lawrence, KS, USA

Self-determined behaviour refers to actions that are identified by four *essential characteristics*: (a) the person acted autonomously; (b) the behaviour(s) are self-regulated; (c) the person initiated and responded to the event(s) in a psychologically empowered manner; and (d) the person acted in a self-realising manner (Wehmeyer, 2003). The concepts of causal agency and volitional action are central to this theoretical perspective. The *f*SDT posits that self-determination emerges across the life span as children and adolescents learn skills and develop attitudes that enable them to be causal agents in their lives and to act volitionally. These skills and attitudes are the *component elements* of self-determined behaviour and include: choice-making skills, decision-making skills, problem-solving skills, goal-setting and -attainment skills, self-monitoring skills, self-advocacy skills, an internal locus of control, perceptions of self-efficacy and outcome expectancy, self-awareness and self-knowledge (Wehmeyer, Kelchner, & Richards, 1996). The *essential characteristics* that define self-determined behaviour emerge through the development and acquisition of these multiple, interrelated *component elements* (Wehmeyer, Sands, Doll, & Palmer, 1997).

Increasingly, the application of this theory to adolescents without disabilities has been explored (Shogren, Lopez, Wehmeyer, Little, & Pressgrove, 2006; Wehmeyer et al., 2011). Researchers argue that the *f*SDT has relevance for improving the outcomes of *all* students as they transition to adulthood, not just adolescents with disabilities. Shogren et al. (2006) examined the comparability of self-determination and other positive psychology constructs across adolescents with and without disabilities, establishing that the construct could be defined in the same way in all adolescents, but that there were mean level differences in self-determination associated with a disability label.

It is important to note, then, that self-determination as a psychological construct, refers the same thing for every person, whether that person does or does not have a disability (Wehmeyer et al., 2011). How the construct is operationalised – what is considered 'self-determined behaviour' – varies widely according to contextual variables, but the fact that self-determination as a psychological construct refers to self- (vs. other-) caused action, – to people acting volitionally, based upon their own will, does not vary. As people move from being children, to adolescents, to adults, there is a shift towards greater autonomy, self-regulation, psychological empowerment, and self-realisation across cultures; however, the way that these essential characteristics of self-determined behaviour are expressed may differ significantly. It then becomes critical to consider the variables that describe differences in this operationalisation when considering the design of interventions to promote self-determination.

Research, however, has been limited on the impact of other variables, such as culture, on the fSDT. Shogren (2011) explored the literature on culture and the *f*SDT, and found theoretical and empirical research examining the expression of self-determined behaviour in Diné cultures (Navajo) (Frankland, Turnbull, Wehmeyer, & Blackmountain, 2004), Korean (Lee & Wehmeyer, 2004), Japanese (Ohtake & Wehmeyer, 2004), Chinese (Zhang, Wehmeyer, & Chen, 2005), as well as diverse cultures within the United States (Trainor, 2005; Valenzuela & Martin, 2005). Researchers in Italy (Nota, Ferrari, Soresi, & Wehmeyer, 2007) and Belgium (Lachapelle et al., 2005) have also explored self-determination and its relationship with other constructs. While this body of research suggests universal aspects of the self-determination construct, it also highlights differences in the specific ways that self-determined behaviour may be expressed in different cultures. For example, in Korean and Japanese culture, self-regulation may be operationalised as setting goals that advance the family or community rather than the individual goals. In Diné culture, autonomy may be operationalised as fulfilling family and clan roles rather than individual roles.

Research is needed that explores the construct comparability of self-determination across cultures. Shogren (2011) found that the majority of research exploring the self-determination construct across cultures was theoretical in nature. The purpose of this study was, therefore, to explore construct comparability across a sample of Italian and American adolescents. We were specifically interested in examining the universal aspects of the self-determination construct, as well as specific differences in the operationalisation of self-determination across cultures. To achieve this aim, we chose to analyse measurement (i.e. item level) and construct level differences across the two cultures using structural equation modelling (SEM). Specifically, we were interested in examining the following research questions:

1. Are there differences at the measurement level across cultures, specifically in item-level endorsement on a measure of self-determination, *The Adolescent Self-Determination Assessment* (ASDA, Wehmeyer, Lopez & Shogren, 2007)?
2. Is the latent structure of the self-determination construct (e.g. higher order constructs representing the four essential characteristics of self-determination that contribute to a third order self-determination construct) supported across cultures?

Method

Participants and procedures

This study was carried out with 237 Italian and 285 American adolescents. Both samples were recruited by working with school personnel in Italy and the United States. Italian adolescents participating in school-based counselling activities filled out the questionnaire during group testing sessions conducted in a small group format by specialised psychologists, in classrooms and in training contexts. American adolescents completed the assessments in their classroom during group testing sessions with support from their classroom teachers. Informed consent was received, along with assent from the student, before school personnel administered the assessment. Because of restrictions introduced by the schools, demographic information was not available on the participants, other than that they were high school students between the ages of 14 and 19 years. No restrictions were introduced by school personnel in sampling students to attempt to ensure that included students represented the range of students served in the Italian and American schools. Not having access to specific demographic information, however, represents a significant limitation.

Instrument

The ASDA (Wehmeyer et al., 2007) was used to assess self-determination The ASDA is a revised version of *The Arc's Self-Determination Scale* (Wehmeyer & Kelchner, 1995), a measure used widely in the disability field. *The Arc's Self-Determination Scale* was developed and normed to measure the self-determination of adolescents and young adults with cognitive disabilities. The ASDA was developed from *The Arc's Self-Determination Scale* to create a valid and reliable measure of self-determination for all adolescents, with and without cognitive disabilities. Items from *The Arc's Self-Determination Scale* that might be perceived by adolescents without cognitive disabilities as too simple were reworded and a focus group of adolescents without disabilities discussed the scale items, item-by-item, providing recommendations for revisions. Wehmeyer, Lopez, Shogren, and Pressgrove (2011) evaluated the psychometric properties of the ASDA, and determined

that the factor structure of the measure replicated that of the original measure and was consistent with the theoretical framework upon which the original scale was based.

The ASDA is a 72-item self-report measure that provides data on self-determination through the measurement of the four essential characteristics of self-determined behaviour: autonomy, self-regulation, psychological empowerment and self-realisation (Wehmeyer, 1996a). Subscale scores can be calculated for the autonomy, self-regulation, psychological empowerment and self-realisation domains, as well as a total self-determination score. A total of 148 points are available on the scale, with higher scores indicating higher levels of self-determination.

Translation procedures

The ASDA (Wehmeyer et al., 2007) was translated from English to Italian using the following procedure. First, two native Italian speakers fluent in English translated each of the items independently. Second, they then compared their translations, and after discussion achieved a common Italian translation of each item. Third, the Italian translations were back-translated by a professional Italian–English translator. Fourth, the professional Italian–English translator and a third native Italian speaker fluent in English compared each back-translated item to the corresponding original item.

Analytic procedures

To examine the comparability of the self-determination constructs across cultures, we used SEM. All analyses were conducted in LISREL Version 8.7. SEM allows researchers to examine the relationships between observed and latent variables and to evaluate the fit of the data to models based in theory and previous research (Brown, 2006; Kline, 2010). SEM procedures integrate measurement models (which specify the relations between a latent construct and its observed indicators) with structural models (which specify the relations among latent constructs). Specifically, the measurement equivalence of the constructs across groups can be assessed, and direct statistical comparisons of the similarities and differences in the means, variances, correlations and regression relationships among the constructs can be examined (Little, 1997).

Our first step included conducting a set of two-group confirmatory factor analyses, one for each of the four essential characteristics of self-determination (autonomy, self-regulation, self-realisation, psychological empowerment). These item level analyses focus on the degree of measurement invariance that can be established across cultures. These analyses involve a series of steps to evaluate invariance in the indicator loadings and intercepts across cultures, freeing item parameters if needed (i.e. establishing partial measurement invariance). After indicator intercept invariance could not be established, we freed the indicators that had the largest modification index for Tau-x, one at a time, until the comparative fit index (CFI) did not differ more than 0.01 from the weak invariant model. If CFI changes are less than 0.01 between each nested model test, invariance is supported (Cheung & Rensvold, 2002).

After establishing which items were invariant across cultures, we created a single structural equation model that included all four latent constructs. In this model, we were interested in examining the comparability of the constructs in the latent space. Indicators for each of the construct included two parcels created from the items that were invariant across cultures (step 1 analyses) along with the non-invariant items as single indicators. A parcel can be defined as 'an aggregate-level indicator comprising the sum (or average)

of two or more items, responses, or behaviors' (Little, Cunningham, Shahar, & Widaman, 2002, p. 152). Parceling offers many advantages over item-level modelling, including greater parsimony, fewer chances for correlated residuals or dual loadings of indicators and reductions in sampling error (Little et al., 2002). To create parcels for the invariant items, the item-to-construct balancing technique was utilised (see Little et al., 2002 for details). Any items that did not demonstrate measurement equivalence across cultures in the item level analyses were allowed to be freely estimated across cultures. The fixed-factor method was used to set the scale. With parcels equated but the non-invariant items freely estimated, the aspects of self-determination that demonstrated measurement equivalence are the defining feature of the latent constructs (Little, 1997). We sequentially tested our latent models using the following steps: (a) a test of the homogeneity of the variances and covariances of the latent constructs in Italian and USA adolescents, (b) a test of the equivalence of the patterns of correlations of the latent constructs in Italian and USA adolescents, (c) a test of the equivalence of the means of the latent constructs in Italian and USA adolescents and (e) tests of a model that includes a higher order self-determination construct defined by each of the four essential characteristics of self-determination (Kline, 2010; Little, 1997).

Results

Here we present our findings as they relate to the (a) measurement models and (b) latent structural models. The multivariate normal assumption of SEM was tested and was adequately satisfied.

Measurement models

As mentioned, our first step included conducting multi-group confirmatory factor analyses for each of the four essential characteristics of self-determination (autonomy, self-regulation, self-realisation, psychological empowerment) to determine which items were invariant across cultures for each subscale of the ASDA.

Autonomy. For the Autonomy model, as shown in Table 1, we were able to establish configural and loading invariance without issue. However, when attempting to equate the indicator intercepts, model fit was significantly affected. Specifically, we found significant changes in fit based on the root mean square error of approximation (RMSEA) Model Test (i.e. does the RMSEA value of the nested model fall within the 90% RMSEA confidence interval of the comparison model: Little, 1997, note too, that changes in the non-normed fit index (NNFI) were greater than 0.01, see Cheung & Rensvold, 2002). Therefore, we freed indicator intercepts, one by one, beginning with the largest modification index until the RMSEA Model Test was no longer significant. As shown in Table 2, Items 1, 2, 9, 11, 12, 16, 17, 18, 19, 25 and 31 were freed. Thus, 11 of the 32 items on the autonomy subscale were not invariant and 21 items were. In the structural models (described below) these 11 items were single indicator items of the latent constructs so they could be freed across cultures. Standard guidelines in cross-cultural research suggest that if a majority of the items are invariant, then there are universal aspects of the latent construct, and these universal aspects were explored in the structural models (Lee, Preacher & Little, 2010).

Self-regulation. For the Self-Regulation model, as shown in Table 3, we were also able to establish configural and loading invariance. However, when attempting to equate the indicator intercepts, model fit was significantly affected on the RMSEA Model Test. We freed indicator intercepts for Items 33, 35, 38 and 39 until the RMSEA Model Test was

Table 1. Fit indices for the multi-group CFA for autonomy.

Model	χ^2	df	p	RMSEA	RMSEA 90% CI	NNFI	CFI
Configural invariance	2058.98	908	<0.001	0.075	0.071–0.079	0.889	0.898
Loading invariance	2143.79	939	<0.001	0.075	0.072–0.079	0.888	0.894
Intercept invariance	2547.99	970	<0.001	0.086	0.082–0.089	0.858	0.861
Partial intercept invariance	2258.01	959	<0.001	0.077	0.074–0.081	0.881	0.885

no longer significant. As shown in Table 4, we freed 4 of the 9 items on the self-regulation subscale and more than 50% of the items were invariant across cultures.

Psychological empowerment. As shown in Table 5, we were also able to establish configural and loading invariance for psychological empowerment. We did, however, again have to free several indicators. As shown in Table 6, Items 42, 54 and 57 were not invariant across cultures and had to be freed in the model; the remaining 13 (of 16) items were invariant.

Self-realisation. The self-realisation model was slightly different than the other three models. The RMSEA Model Test indicated a significant, negative impact when loading invariance was enforced in the model as shown in Table 7. Items 68 and 71 had to be freed to establish partial loading invariance. For this reason, these items were dropped from further analyses. We examined intercept invariance of the remaining items, and found that several items had to be freed, including items 59, 62, 63, 65, 67, and 72. As shown in Table 8, 6 of the 13 items varied across cultures, and 7 were invariant.

Structural models

Based on the results of the analyses reported in the previous section, we constructed a model including each of the four constructs to analyse differences in the latent constructs across cultures. This model was again constructed as a multi-group structural equation model, but with each of the four latent constructs included in one model. As mentioned in the Methods section, in specifying indicators for each of the four latent constructs, we created two parcels of the invariant items, using the item-balancing approach, for each latent construct and specified that each of the non-invariant items was a single indicator for the latent construct. Thus, the autonomy construct had 13 indicators (11 non-invariant items and 2 parcels of invariant items), the self-regulation construct 6 indicators, the psychological empowerment construct 5 indicators and the self-realisation construct 8 indicators. As shown in Table 9, we found significant differences in the variances/covariances, correlations and latent means. Table 10 presents the pattern of correlations between the latent constructs in the US and Italian sample, and Table 11 presents tests of the invariance of the latent means across groups. Interestingly, the latent mean for the psychological empowerment construct did not differ across groups, but the remaining constructs did.

Finally, we specified a second-order latent construct of self-determination with each of the four essential characteristics of self-determination loading on this construct. The model fit was good: χ^2 (920, $n = 558$) = 1466.76; $p < 0.001$; CFI = 0.92; NNFI = 0.9; RMSEA = 0.046 (CI$_{90}$ = 041–0.050). Recommendations for acceptable model fit are an absolute fit index of RMSEA less than 0.08 (i.e. as close to zero as possible), and relative fit indices of NNFI and CFI of 0.90 or greater for acceptable fit (i.e. as close to 1.00 as possible). Table 12 presents the standardised loadings of the four essential characteristics on the higher order self-determination construct across cultures.

Table 2. Loading and intercept values, residuals and R^2 values for each indicator from the partial intercept invariance model for autonomy.

Indicator	Italian group							US group						
	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2
Item 1	1.00	–	1.67	0.060	0.940	0.081	0.026	1.00	–	1.223	0.110	0.519	0.044	0.079
Item 2	1.061	0.285	1.87	0.064	1.125	0.097	0.024	1.061	0.285	1.248	0.115	0.616	0.052	0.076
Item 3	0.774	0.187	1.232	0.052	0.922	0.079	0.016	–	–	–	–	0.562	0.047	0.046
Item 4	1.801	0.361	2.062	0.052	0.829	0.073	0.088	–	–	–	–	0.496	0.043	0.227
Item 5	0.922	0.214	10.491	0.059	1.275	0.110	0.016	–	–	–	–	0.527	0.045	0.067
Item 6	1.489	0.296	2.425	0.042	0.543	0.048	0.092	–	–	–	–	0.272	0.024	0.268
Item 7	2.146	0.421	2.429	0.045	0.522	0.047	0.179	–	–	–	–	0.422	0.037	0.329
Item 8	0.479	0.136	0.615	0.045	0.686	0.059	0.008	–	–	–	–	0.451	0.038	0.022
Item 9	1.437	0.320	2.575	0.040	0.393	0.035	0.115	1.437	0.320	1.877	0.100	0.493	0.042	0.158
Item 10	1.475	0.301	1.584	0.050	0.768	0.067	0.066	–	–	–	–	0.520	0.045	0.158
Item 11	1.830	0.379	2.70	0.041	0.373	0.034	0.182	1.830	0.379	2.315	0.092	0.366	0.032	0.291
Item 12	2.200	0.450	1.865	0.057	0.753	0.067	0.137	2.200	0.450	2.40	0.102	0.379	0.034	0.364
Item 13	1.274	0.266	1.434	0.049	0.754	0.065	0.051	–	–	–	–	0.754	0.032	0.119
Item 14	2.310	0.449	2.470	0.041	0.381	0.035	0.258	–	–	–	–	0.381	0.031	0.414
Item 15	2.198	0.432	2.320	0.049	0.656	0.059	0.155	–	–	–	–	0.656	0.040	0.324
Item 16	1.548	0.322	2.748	0.036	0.291	0.026	0.170	1.548	0.322	2.458	0.080	0.275	0.024	0.281
Item 17	1.858	0.394	0.960	0.061	0.942	0.082	0.083	1.858	0.394	1.782	0.103	0.457	0.040	0.253
Item 18	2.124	0.438	1.832	0.058	0.810	0.072	0.121	2.124	0.438	2.441	0.103	0.394	0.035	0.339
Item 19	2.237	0.458	1.719	0.056	0.733	0.065	0.145	2.237	0.458	2.312	0.102	0.473	0.042	0.322
Item 20	1.417	0.294	1.623	0.054	0.914	0.079	0.052	–	–	–	–	0.596	0.051	0.131
Item 21	0.941	0.219	1.176	0.060	1.240	0.106	0.017	–	–	–	–	0.623	0.052	0.060
Item 22	1.436	0.297	1.498	0.055	0.990	0.085	0.049	–	–	–	–	0.527	0.045	0.149
Item 23	1.538	0.314	1.550	0.054	1.006	0.087	0.055	–	–	–	–	0.446	0.038	0.192
Item 24	1.126	0.242	1.292	0.051	0.874	0.076	0.035	–	–	–	–	0.543	0.046	0.095
Item 25	1.444	0.339	1.154	0.075	1.477	0.128	0.034	1.444	0.339	2.049	0.115	0.520	0.045	0.152
Item 26	0.763	0.185	0.960	0.053	0.940	0.081	0.015	–	–	–	–	0.559	0.047	0.045
Item 27	1.259	0.269	1.366	0.058	1.124	0.097	0.034	–	–	–	–	0.587	0.050	0.108
Item 28	1.940	0.377	2.574	0.032	0.211	0.020	0.307	–	–	–	–	0.232	0.021	0.421
Item 29	1.835	0.356	2.774	0.030	0.187	0.018	0.309	–	–	–	–	0.213	0.019	0.415
Item 30	2.038	0.398	2.460	0.041	0.420	0.038	0.197	–	–	–	–	0.342	0.030	0.353
Item 31	2.178	0.444	2.216	0.054	0.678	0.482	0.148	2.178	0.444	2.662	0.098	0.351	0.032	0.377
Item 32	1.656	0.327	2.521	0.041	0.482	0.043	0.124	–	–	–	–	0.289	0.025	0.299

Notes. Bolded items are invariant across cultures. To receive English or Italian version of the ASDA, please contact the authors.

Table 3.   Fit indices for the multi-group CFA for self-regulation.

Model	χ^2	df	p	RMSEA	RMSEA 90% CI	NNFI	CFI
Configural invariance	20.64	34	<0.001	0.00	0.00–0.00	1.02	1.00
Loading invariance	35.57	42	<0.001	0.00	0.00–0.03	1.01	1.00
Intercept invariance	212.66	50	<0.001	0.11	0.09–0.12	0.823	0.877
Partial intercept invariance	51.46	46	<0.001	0.01	0.00–0.05	0.994	1.00

Discussion

The purpose of this study was to explore the comparability of the self-determination construct across Italian and American adolescents to determine if there are universal aspects of the self-determination construct, as well as to explore potential differences in the operationalisation of self-determined behaviour in Italian and American cultures. Although the lack of demographic data renders conclusions tentative, the results preliminarily suggest that there are universal aspects of the self-determination construct, but that there are also differences at the measurement level across cultures. In exploring the implications of our findings, the discussion section will be divided into three sections: limitations of the study, summary of the findings and implications for future research.

Limitations of the study

First, limited demographic information was available to the authors, which introduced several limitations. In particular, differences identified between Italian and American adolescents could be related to demographic differences as well as cultural differences. However, by attempting to sample the range of students served in Italian and American classrooms we hope this limtiation was reduced, although it must be considered in the interpretation of the findings. In addition, we were unable to undertake any analyses related to differences based on demographic characteristics (e.g. gender) or experience with self-determination and family support for self-determination within or across cultures. Given previous research (Nota et al., 2007; Shogren et al., 2006) that has suggested these variables may influence student self-determination, further research is needed to explore the influence of these characteristics across cultures.

Second, our sample was limited to Italian and American adolescents, future research including a more diverse sample of nationalities is needed. Finally, culture is a complex construct (Shogren, 2011), and nationality is not the only characteristic that defines culture. However, in this study we used nationality (American vs. Italian) as a proxy for culture. Future research exploring more nuanced aspects of culture will be important to further explicate differences in the operationalisation of the self-determination construct.

Summary of the findings

Measurement level. Our first research question explored differences at the measurement level, specifically in item-level endorsement on the ASDA (Wehmeyer et al., 2007) across cultures. As shown in the results section, there were differences across American and Italian adolescents. Specifically, across the four subscales of the ASDA, slightly more than half of all items could be equated at the mean level in the measurement models. This suggests that while the majority of items on the ASDA can be equated at the loading and intercept level across Italian and American adolescents, a large minority of items could not be equated at the intercept level. This tentatively suggests there are clear universal aspects

Table 4. Loading and intercept values, residual and R^2 values for each indicator from the partial intercept invariance for self-regulation model.

| Indicator | Italian group | | | | | | | US group | | | | | | |
	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2
Item 33	1.00	–	1.547	0.037	0.332	0.031	0.101	1.00	–	1.062	0.045	0.394	0.040	0.242
Item 34	1.226	0.170	1.260	0.030	0.371	0.034	0.131	–	–	–	–	0.202	0.021	0.484
Item 35	1.410	0.189	1.245	0.034	0.248	0.025	0.230	1.410	0.189	1.410	0.042	0.227	0.025	0.524
Item 36	1.494	0.216	1.410	0.031	0.266	0.027	0.238	–	–	–	–	0.289	0.030	0.493
Item 37	1.198	0.177	1.198	0.028	0.287	0.028	0.157	–	–	–	–	0.217	0.023	0.454
Item 38	1.109	0.164	1.274	0.026	0.236	0.023	0.162	1.109	0.164	1.284	0.026	0.198	0.021	0.438
Item 39	1.268	0.277	1.048	0.077	1.622	0.142	0.036	1.268	0.277	1.820	0.082	1.632	0.141	0.110
Item 40	0.409	0.232	1.133	0.057	1.653	0.142	0.004	–	–	–	–	1.719	0.145	0.012
Item 41	1.335	0.253	1.879	0.051	1.208	0.107	0.052	–	–	–	–	1.190	0.104	0.158

Notes: Bolded items are invariant across cultures. To receive English or Italian version of The ASDA, please contact the authors.

Table 5.   Fit indices for the multi-group CFA for psychological empowerment.

Model	χ^2	df	p	RMSEA	RMSEA 90% CI	NNFI	CFI
Configural invariance	396.52	188	<0.001	0.071	0.063–0.079	0.917	0.935
Loading invariance	437.05	203	<0.001	0.071	0.063–0.079	0.913	0.927
Intercept invariance	591.92	218	<0.001	0.083	0.076–0.091	0.871	0.883
Partial intercept invariance	467.99	215	<0.001	0.071	0.063–0.079	0.912	0.921

of the self-determination construct, but that there are also likely significant differences in the operationalisation of the construct across cultures. For example, for the Autonomy subscale, Italian adolescents scored significantly higher on several items related to making meals, caring for clothes, keeping appointments, doing activities based on interests and listening to preferred music. But they scored lower on activities such as planning weekend activities, volunteering, going to preferred restaurants and movies, and working for pay than American adolescents. There were no differences in activities such as caring for personal items, making friends, being involved in school-related activities and engaging in career planning. This suggests that there are specific activities that may differ in the samples although there are a core number of items that are similar across cultures. The differences may result from Italian adolescents having a higher level of responsibility within the home, but a lower level of freedom outside the home when they are away from parents' supervision. Research has suggested that Italian parents may exert greater control over their children (Soresi, Nota & Ferrari, 2004) than American parents prior to adolescents coming of age, which may influence the self-determination measurement items that are congruent across cultures. Research is needed to systematically explore the reasons for these differences at the item-level and verify this in a larger sample with complete demographic information.

A similar pattern was found in the other subscales on the ASDA. On the self-regulation subscale, there were no differences between Italian and American adolescents on problem solving items related to taking leadership roles and following up on job leads, but American adolescents were more likely to identify ways to solve problems related to problems with friends and fitting in at a new school. In addition, they have strategies on where to live after graduating from high school. This outcome may be connected with Italian adolescents being more 'residential' as they usually attend university in the same place where they live or in nearby towns, thus reducing the need to move far and leave their homes (Fondazione Rui, 2011).

In terms of psychological empowerment, Italian adolescents indicated that they were more likely to stand up to their friends and make choices that were important to them, but specified that in spite of their abilities, they felt less able to get the job that they wanted. It must be recalled that Italian adolescents are called on to make a choice about their future as early as in middle school. They have to choose among several types of high schools that prepare them for different occupations or for college education. Also within the high school they have chosen, after the first two or three years, they may find that they have to make other choices as regards more specific educational courses. This could be related both to higher levels of decision-making but also to greater use of their 'decisional abilities' for important issues (Howard, Ferrari, Nota, Solberg, & Soresi, 2009). Some sort of insecurity about the future and a negative attitude towards the chances of work inclusion, which is becoming widespread in the Italian context (Crespi, 2005), may underlie the idea that the desired occupation is not as likely to be attained.

Table 6. Loading and intercept values, residuals and R^2 values for each indicator from the partial intercept invariance for psychological empowerment.

Indicator	Italian group							US group						
	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2
Item 42	1.00	–	0.856	0.021	0.115	0.010	0.044	1.00		0.700	0.027	0.210	0.018	0.034
Item 43	1.291	0.328	0.802	0.018	0.156	0.013	0.053	–	–	–	–	0.144	0.012	0.078
Item 44	1.167	0.350	0.817	0.017	0.159	0.014	0.043	–	–	–	–	0.129	0.011	0.072
Item 45	1.181	0.375	0.745	0.019	0.158	0.014	0.044	–	–	–	–	0.214	0.018	0.046
Item 46	1.559	0.389	0.927	0.012	0.049	0.004	0.208	–	–	–	–	0.060	0.005	0.229
Item 47	1.915	0.483	0.862	0.016	0.088	0.008	0.180	–	–	–	–	0.109	0.010	0.198
Item 48	2.023	0.501	0.875	0.016	0.106	0.010	0.169	–	–	–	–	0.070	0.006	0.299
Item 49	2.008	0.496	0.888	0.015	0.114	0.010	0.158	–	–	–	–	0.057	0.005	0.341
Item 50	1.501	0.370	0.940	0.011	0.057	0.005	0.172	–	–	–	–	0.034	0.003	0.324
Item 51	1.809	0.450	0.906	0.014	0.069	0.006	0.201	–	–	–	–	0.066	0.006	0.264
Item 52	2.161	0.527	0.909	0.015	0.069	0.007	0.264	–	–	–	–	0.051	0.005	0.401
Item 53	1.708	0.427	0.905	0.014	0.064	0.006	0.193	–	–	–	–	0.073	0.006	0.227
Item 54	1.886	0.464	0.617	0.030	0.233	0.020	0.075	1.886	0.464	0.931	0.015	0.044	0.004	0.371
Item 55	2.113	0.526	0.863	0.016	0.076	0.007	0.237	–	–	–	–	0.117	0.010	0.218
Item 56	2.082	0.501	0.930	0.013	0.033	0.003	0.412	–	–	–	–	0.047	0.004	0.402
Item 57	2.114	0.513	0.942	0.014	0.031	0.003	0.435	2.114	0.513	0.866	0.019	0.076	0.007	0.299

Note: Bolded items are invariant across cultures.

Table 7. Fit indices for the multi-group CFA for self-realisation.

Model	χ^2	df	p	RMSEA	RMSEA 90% CI	NNFI	CFI
Configural invariance	252.09	160	<0.001	0.047	0.036−0.050	0.908	0.930
Loading invariance	301.43	174	<0.001	0.052	0.043−0.062	0.883	0.903
Partial loading invariance	280.28	172	<0.001	0.048	0.037−0.058	0.900	0.918
Intercept invariance	538.17	184	<0.001	0.087	0.079−0.096	0.693	0.731
Partial intercept invariance	305.89	178	<0.001	0.052	0.042−0.061	0.886	0.903

On the self-realisation subscale, American adolescents had higher endorsement of items related to not being afraid of doing things wrong and feeling as though you can do many things, but were similar to Italian adolescents on items like no accepting limitations and showing feelings. In addition, American adolescents scored lower on items related to higher self-efficacy in their own abilities, or knowing what things they can do best. As already mentioned, Italian adolescents are requested to make a choice about the future at a younger age which may influence endorsement of items related to self-realisation.

Although this is only a preliminary insight into differences in the operationalisation of self-determined behaviour across cultures and further research is needed that explores the impact of demographic variables, the research does provide initial suggestions on several specific situations and activities that may influence the expression of self-determined behaviour that should be further explored in future research.

Latent structure. Despite the differences at the measurement level for a minority of items on the ASDA, the majority of items were invariant across cultures. This met the standard guidelines in cross-cultural research that suggest if a majority of items are invariant, there are universal aspects of the underlying latent construct (Lee et al., 2010). Thus, we created a combined multi-group model including each of the four constructs to analyse differences in the latent constructs across cultures. The model demonstrated good fit to the data suggesting universal aspects of the self-determination construct, verifying what has been suggested by theorists (Wehmeyer et al., 2011). There were, however, differences in the pattern of correlations across cultures, with Italian adolescents, generally, showing a stronger pattern of interrelationship among the four subscales, perhaps for the reasons described above regarding the early focus on autonomy in Italian adolescents and the influence this may have on psychological empowerment and self-realisation. There were also latent mean level differences with Italian adolescents scoring higher on the autonomy, self-regulation and self-realisation construct, but not the psychological empowerment construct. Thus, while there are universal aspects of the self-determination construct, there are also differences in the latent space in the pattern of relationship among the constructs and in the latent means. Future research is needed to explore the factors that impact these differences, as well as to explore the influence of demographic variables within and across cultures.

Finally, to verify the theoretical structure the *f*SDT across cultures, we specified a higher-order self-determination construct comprising the four subscales, and found that the model fit the data. This preliminarily suggests the universality of the factor structure proposed in the *f*SDT.

Implications for future research

The results of this study preliminarily suggest universal aspects of the self-determination construct as defined by the *f*SDT in Italian and American adolescents. They also suggest specific differences at the measurement level, and provide initial guidance on items from

Table 8. Loading and intercept values, residuals and R^2 values for each indicator from the partial intercept invariance for self-realisation.

| Indicator | Italian group | | | | | | | US group | | | | | | |
	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2	Loading	(SE)	Intercept	(SE)	Theta	(SE)	R^2
Item 58	1.00	–	0.516	0.023	0.249	0.021	0.001	–	–	–	–	0.249	0.021	0.005
Item 59	2.923	2.470	0.780	0.025	0.170	0.015	0.009	2.923	2.470	0.638	0.033	0.200	0.017	0.054
Item 60	4.080	3.205	0.611	0.022	0.232	0.020	0.013	–	–	–	–	0.193	0.017	0.103
Item 61	3.339	2.731	0.805	0.018	0.157	0.014	0.013	–	–	–	–	0.096	0.008	0.135
Item 62	0.720	0.969	0.077	0.016	0.068	0.006	0.001	0.720	0.969	0.449	0.034	0.246	0.021	0.003
Item 63	4.874	3.949	0.938	0.015	0.055	0.005	0.074	4.874	3.949	0.771	0.026	0.079	0.008	0.286
Item 64	5.037	4.072	0.767	0.019	0.158	0.014	0.029	–	–	–	–	0.088	0.008	0.279
Item 65	4.483	3.651	0.894	0.019	0.092	0.008	0.039	4.483	3.651	0.725	0.029	0.123	0.011	0.180
Item 66	0.893	1.071	0.478	0.023	0.253	0.022	0.001	–	–	–	–	0.246	0.021	0.004
Item 67	5.009	4.075	0.434	0.030	0.242	0.021	0.019	5.009	4.075	0.670	0.031	0.141	0.013	0.192
Item 69	3.703	3.049	0.654	0.022	0.232	0.020	0.011	–	–	–	–	0.174	0.015	0.095
Item 70	5.926	4.784	0.713	0.022	0.209	0.018	0.030	–	–	–	–	0.087	0.009	0.351
Item 72	5.926	4.796	0.910	0.017	0.075	0.007	0.080	5.926	4.796	0.751	0.028	0.065	0.009	0.420

Notes: Bolded items are invariant across cultures. Items 68 and 71 dropped from analyses because loading invariance could not be established. To receive English or Italian version of the ASDA, please contact the authors.

Table 9. Fit indices for the nested sequence in the multi-group structural analyses.

Model	χ^2	Df	p	$\Delta\chi^2$	Δ df	p	RMSEA	RMSEA 90% CI	NNFI	CFI	Constraint tenable
Configural invariance[1]	1427.432	916	<0.001	–	–	–	0.0448	0.0402–0.0493	0.916	0.922	–
Loading invariance[1]	1442.011	924	<0.001	14.58	8	0.07	0.0448	0.0402–0.0493	0.916	0.921	Yes
Intercept invariance[1]	1445.370	928	<0.001	3.36	4	0.50	0.0446	0.0400–0.0492	0.916	0.921	Yes
Homogeneity of variance/ covariance[2]	1503.955	938	<0.001	58.59	10	<0.001	0.0465	0.0421–0.0509	0.909	0.914	No
Equality of correlation[2]	1471.060	934	<0.001	25.69	6	<0.001	0.0455	0.0410–0.0500	0.913	0.918	No
Latent mean Invariance[2]	1852.842	932	<0.001	407.47	4	<0.001	0.0547	0.0506–0.0589	0.851	0.860	No

Note. Each nested model contains its constraints, plus the constraints of all previous, tenable models.
[1] Evaluated with RMSEA Model Test.
[2] Evaluated with χ^2 difference test on intercept invariance model.

Table 10. Correlation between latent constructs for Italian and USA adolescents.

	Autonomy	Self-regulation	Empowerment	Self-realisation
Autonomy	1.00	*0.163*	*0.346*	*0.344*
Self-regulation	0.317	1.00	*0.171*	*0.241*
Empowerment	0.354	0.307	1.00	*0.735*
Self-realisation	0.422	0.519	0.836	1.00

Note. Italicised correlations are for American adolescents.

Table 11. Results of nested χ^2 tests for latent mean level differences.

Constructs	Latent mean Italian group	Latent mean USA group	χ^2	df	P	$\Delta\chi^2$	Δ df	p	Equivalent across groups
Intercept invariance (Baseline model)	–	–	1445.37	928	<0.001	–	–	–	
Autonomy	0.358	−0.088	1812.20	929	<0.001	366.83	1	<0.001	No
Self-regulation	0.106	−0.066	1464.55	929	<0.001	19.18	1	<0.001	No
Empowerment	0.000	−0.007	1445.80	929	<0.001	0.43	1	0.51	Yes
Self-realisation	−0.035	0.008	1453.60	929	<0.001	8.23	1	<0.05	No

Table 12. Loadings of the lower order constructs on the higher order self-determination construct.

	Italian group			US group		
	Beta (SE)	*z*-score	*p*-value	*Beta* (SE)	*z*-score	*p*-value
Autonomy	−0.40 (0.03)	−2.85	<0.05	−0.40 (0.02)	−3.68	<0.05
Self-regulation	−0.48 (0.04)	−4.32	<0.05	−0.23 (0.03)	−2.84	<0.05
Psychological empowerment	−0.69 (0.02)	−3.99	<0.05	−0.70 (0.03)	−2.57	<0.05
Self-realisation	−0.96 (0.04)	−2.23	<0.05	−0.97 (0.03)	−2.99	<0.05

the ASDA that could be used in cross-cultural research to measure universal aspects of the self-determination construct. Further research is needed to validate these findings within Italian and American cultures, as well as with adolescents from other nationalities and cultural groups. Further research is also needed to explore the reasons for the differences in the operationalisation of self-determined behaviour within Italian and American cultures and the influence of additional demographic variables. However, this research provides an initial step forward in examining the cross-cultural application of the self-determination construct and opens the door for additional cross-cultural research.

Notes on contributors

Maria Cristina Ginevra is adjunct professor at the University of Milan-Bicocca, where she teaches psychology of disability and school inclusion. She collaborates with Larios Laboratory (Laboratory for Research and Intervention in Vocational Designing and Career Counseling) and the University Services and Research Centre for Disability, Rehabilitation and Inclusion, University of Padua. She

is a member of International Hope Research Team. She is author and co-author of 16 national and international publications in the field of career counseling and psychology of disability.

Laura Nota is professor of psychological counseling for the Inclusion of Disability and Social Disadvantage. She is the director of the Larios Laboratory (Laboratory for Research and Intervention in Vocational Designing and Career Counseling) and the University Services and Research Centre for Disability, Rehabilitation and Inclusion. She is a member of International Hope Research Team. She is the author of over one hundred publications, more than ten books, and many international and national articles in the field of psychology of disability and vocational psychology.

Salvatore Soresi is a professor at the University of Padua. He founded the University Services and Research Centre for Disability, Rehabilitation and Inclusion and is now a member of its scientific committee. He is the founder of the International Hope Research Team that involves numerous national and international Universities. He is the author of more than two hundred and fifty publications, more than twenty books, and a number of important assessment instruments in the field of psychology of disability and vocational psychology.

Karrie A. Shogren, PhD, is associate professor of special education at the University of Kansas. Her research focuses on self-determination, positive psychology, and systems of support for individuals with disabilities.

Michael L. Wehmeyer, PhD, is professor of special education; director, Kansas University Center on Developmental Disabilities, and senior scientist, Beach Center on Disability; all at the University of Kansas. His research focuses on self-determination, the education of students with more extensive support needs, technology use by people with cognitive disabilities, and conceptualizing and understanding disability.

Todd D. Little, PhD, is professor of psychology and director of the Center for Research Methods and Data Analysis. His research interests span developmental methods, SEM and longitudinal modeling as well as self-regulation, self-determination, and personal agency.

References

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford Press.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*, 233–255.

Crespi, F. (2005). *Tempo vola [The time flies]*. Bologna: il Mulino.

Fondazione Rui. (2011). Eurostudent. Eurostudent - Sesta Indagine sulle condizioni di vita e di studio degli studenti universitari in Italia [Sixth Survey on living and study conditions of university students in Italy]. Retrieved from http://www.eurostudent-italia.it.

Frankland, H. C., Turnbull, A. P., Wehmeyer, M. L., & Blackmountain, L. (2004). An exploration of the self-determination construct and disability as it relates to the Dine (Navajo) culture. *Education and Training in Developmental Disabilities*, *39*, 191–205.

Howard, K. A. S., Ferrari, L., Nota, L., Solberg, V. S. H., & Soresi, S. (2009). The relation of cultural context and social relationships to career development in middle school. *Journal of Vocational Behavior*, *75*, 100–108.

Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). New York: Guilford.

Lachapelle, Y., Wehmeyer, M. L., Haelewyck, M. C., Courbois, Y., Keith, K. D., Schalock, R., . . . Walsh, P. N. (2005). The relationship between quality of life and self-determination: An international study. *Journal of Intellectual Disability Research*, *49*(10), 740–744. doi: 10.1111/j.1365-2788.2005.00743.x

Lee, J., Preacher, K. J., & Little, T. D. (2010). Partial factorial invariance in cross-cultural comparisons. In E. Davidov, P. Schmidt & J. Billiet (Eds.), *Cross-cultural data analysis: Methods and applications* (pp. 57–86). New York: Guilford Press.

Lee, S. H., & Wehmeyer, M. L. (2004). A review of the Korean literature related to self-determination: Future directions and practices for promoting the self-determination of students with disabilities. *Korean Journal of Special Education*, *38*, 369–390.

Little, T. D. (1997). Mean and covariance structures (MACS) analyses of cross-cultural data: Practical and theoretical issues. *Multivariate Behavioral Research*, *32*, 53–76.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, *9*, 151–173.

Nota, L., Ferrari, L., Soresi, S., & Wehmeyer, M. (2007). Self-determination, social abilities and the quality of life of people with intellectual disability. *Journal of Intellectual Disability Research*, *51*, 850–865. doi: 10.1111/j.1365-2788.2006.00939.x

Ohtake, Y., & Wehmeyer, M. L. (2004). Applying the self-determination theory to Japanese special education contexts: A four-step model. *Journal of Policy and Practice in Intellectual Disabilities*, *1*, 169–178.

Shogren, K. A. (2011). Culture and self-determination: A review of the literature and directions for future research and practice. *Career Development for Exceptional Individuals*, *34*, 115–127. doi: 10.1177/0885728811398271

Shogren, K. A., Lopez, S. J., Wehmeyer, M. L., Little, T. D., & Pressgrove, C. L. (2006). The role of positive psychology constructs in predicting life satisfaction in adolescents with and without cognitive disabilities: An exploratory study. *The Journal of Positive Psychology*, *1*, 37–52.

Soresi, S., Nota, L., & Ferrari, L. (2004). Autodeterminazione e scelte scolastico-professionali: Uno strumento per l'assessment (Self-determination and career choices: An assessment instrument). *Giornale Italiano di Psicologia dell'Orientamento*, *5/1*, 26–42.

Trainor, A. (2005). Self-determination perceptions and behaviors of diverse students with LD during the transition planning process. *Journal of Learning Disabilities*, *38*, 233–248.

Valenzuela, R. L., & Martin, J. E. (2005). Self-directed IEP: Bridging values of diverse cultures and secondary education. *Career Development for Exceptional Individuals*, *28*, 4–14.

Wehmeyer, M. L. (1996). A self-report measure of self-determination for adolescents with cognitive disabilities. *Education and Training in Mental Retardation and Developmental Disabilities*, *31*, 282–293.

Wehmeyer, M. L. (2003). A functional theory of self-determination: Model overview. In M. L. Wehmeyer, B. Abery, D. E. Mithaug & R. Stancliffe (Eds.), *Theory in self-determination: Foundations for educational practice*. Springfield, IL: Charles C. Thomas Publishing Company.

Wehmeyer, M. L. (2005). Self-determination and individuals with severe disabilities: Re-examining meanings and misinterpretations. *Research and Practice for Persons with Severe Disabilities*, *30*, 113–120.

Wehmeyer, M. L., Abery, B. H., Zhang, D., Ward, K., Willis, D., Hossain, W. A., . . . Walker, H. M. (2011). Personal self-determination and moderating variables that impact efforts to promote self-determination. *Exceptionality*, *19*, 19–30. doi: 10.1080/09362835.2011.537225

Wehmeyer, M. L., & Kelchner, K. (1995). *The Arc's Self-Determination Scale*. Arlington, TX: The Arc National Headquarters.

Wehmeyer, M. L., Kelchner, K., & Richards, S. (1996). Essential characteristics of self-determined behavior of individuals with mental retardation. *American Journal on Mental Retardation*, *100*, 632–642.

Wehmeyer, M. L., & Little, T. D. (2009). Self-determination. In S. Lopez (Ed.), *The encyclopedia of positive psychology*, *2*, (pp. 868–874). Boston: Blackwell Publishing.

Wehmeyer, M. L., Little, T., & Sergeant, J. (2009). Self-determination. In S. Lopez & R. Snyder (Eds.), *Handbook of positive psychology* (2nd Ed., pp. 357–366). Oxford: Oxford University Press.

Wehmeyer, M. L., Lopez, S. J., & Shogren, K. A. (2007). *The adolescent self-determination assessment*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Wehmeyer, M. L., Lopez, S. J., Shogren, K. A., & Pressgrove, C. L. (2011). *Psychometric properties of the adolescent self-determination assessment*. Manuscript in preparation.

Wehmeyer, M. L., Sands, D. J., Doll, B., & Palmer, S. B. (1997). The development of self-determination and implications for educational interventions with students with disabilities. *International Journal of Disability, Development and Education*, *44*, 305–328.

Zhang, D., Wehmeyer, M. L., & Chen, L.-J. (2005). Parent and teacher engagement in fostering the self-determination of students with disabilities: A comparison between the United States and the Republic of China. *Remedial and Special Education*, *26*, 55–64.