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Value Profiles During Middle Childhood: Developmental Processes and Social Behavior

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Little is known about how children's value priorities develop over time. This study identifies children's value priority profiles and follows their development during middle childhood. Australian children (N = 609; ages 5–12 at Time 1) reported their values over 2 years. Latent Transition Analysis indicated four profiles: Social-Focus, Self-Focus, Growth-Focus and Undifferentiated. Within person development was characterized by profile stability or transfer to the Social-Focus profile. Younger children were more likely to have an Undifferentiated profile (or Self-Focus among boys) than older ones. Girls were more likely to have a Social-Focus profile or transfer to it, and less likely to have a Self- or Growth-Focus profile than boys. Social-Focus profile membership over time predicted more prosocial and less aggressive behavior.

Values are broad motivational goals that reflect what is important to people in their lives (Rokeach, 1973; Schwartz, 1992). They guide people's beliefs, attitudes, and behaviors across situations (Roccas & Sagiv, 2010; Skimina, Cieciuch, Schwartz, Davidov, & Algesheimer, 2018). Much is known about the meaning and structure of values and their antecedents and consequences. However, most of the focus of values research has been on adult's values, and to a lesser extent adolescent's values, with only a small but growing interest in the study of children's values (Döring, Daniel, & Knafo-Noam, 2016).

Early research argued that children were externally guided: in the context of values they were believed to either internalize the values in their environment or not hold values at all (Erikson, 1968; Strauss, 1992). However, recent advances in values research suggest children as young as 5 years of age hold values similar in meaning and inter-relations to the values of adults (Cieciuch, Davidov, & Algesheimer, 2016; Lee, Ye, Sneddon, Collins, & Daniel, 2017). These values appear to develop on the basis of internal, heritable mechanisms (Uzefovsky, Döring, & Knafo-Noam, 2016), as well as socialization (Döring, Makarova, Herzog, & Bardi, 2017). Yet, little is known about how values develop in childhood (Döring et al., 2016) and even less is known about patterns of change and stability during this period (for an exception, see Cieciuch et al., 2016).

This study investigates the value profiles of children during middle childhood, identifying patterns of change and stability within individual children over time, as well as between age and gender groups. We also assess whether these value profiles, and the manner in which they change over time, influence social behavior, including aggressive and prosocial behavior.

Values and Value Profiles

In his seminal theory of human values, Schwartz (1992) identified the structure of values, based on a circular motivational continuum. In this theory, some values are compatible in their underlying motivations, whereas others are conflicting. Compatible values, located close together in the circle,

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direct individuals to pursue similar goals. Conflicting values, located on opposite sides of the circle, push individuals in opposing directions. This value structure has been supported in hundreds of studies in over 80 countries (Sagiv, Roccas, Cieciuch, & Schwartz, 2017). While people appear to share a common value structure, they differ in the relative importance they ascribe to different values.

Schwartz (1992) identified 10 basic values and 4 higher order value regions within a circular motivational continuum that captures the conflicts and compatibilities among values. The first higher order region opposes *self-transcendence,* including values that convey concern for the welfare and interests of others (universalism and benevolence), with *self-enhancement,* including values that promote the pursuit of self-interest (achievement and power). The second higher order region opposes *openness to change*, including values that reflect the pursuit of autonomy, novelty, and excitement (self-direction, stimulation, and often hedonism), with *conservation*, including values that emphasize acceptance of the status quo and avoidance of conflict, unpredictability, and change (security, conformity, and tradition).

Schwartz (2012) also summarized the relations among values based on two basic human requirements. The first contrasts Self-Focus values that promote concern with outcomes for the self (i.e., self-enhancement and openness to change values) with Social-Focus values that promote concern with outcomes for other people and institutions (i.e., self-transcendence and conservation values). The second contrasts Growth-Focus values that promote growth and self-expansion (i.e., self-transcendence and openness to change values) with self-protection-focus values that promote protecting the self from anxiety and threat (self-enhancement and conservation values).

These dimensions summarize the theoretical relations among values that are likely to be reflected in individuals' personal value hierarchies. It is widely established that each person has a personal value hierarchy, where some values are highly important and others of far less importance (Roccas, Sagiv, & Navon, 2017). The understanding of this value hierarchy can be enhanced by taking the value system into account to consider an individual's value profile, rather than the importance they place on a specific value in isolation (Schwartz, Sagiv, & Boehnke, 2000). Thus, we consider the combination of values each individual prioritizes, to understand not isolated motivations, but general inclinations.

The implications of viewing values as a system have far-reaching consequences for understanding behavior. For example, two children may prioritize self-transcendence values; however, the first also prioritizes openness to change and the second conservation values. The meaning assigned to self-transcendence values, and their consequences for behavior, may vary between these children based on their combined value priorities. The first child is likely to view caring for others as an act of self-actualization, and behave in a caring manner guided by their own intrinsic motivations. The second child is likely to view caring for others as a social expectation, and behave in a caring manner guided by external motivation to meet social obligations (Benish-Weisman, Daniel, Sneddon, & Lee, 2019).

On the basis of the idea that values combine within individuals to form a values system that is consistent with the structural compatibilities and conflicts among values, we hypothesize that value profiles will prioritize combinations of compatible motivations over combinations of conflicting motivations. Three such value profiles were identified in a recent study of adolescents, including a Social-Focus profile, termed *Other-Focus,* prioritizing conservation and self-transcendence values, a Growth-Focus profile, termed *Anxiety-Free,* prioritizing openness-to-change and self-transcendence, and a Self-Focus profile, termed *Self-Focus*, prioritizing openness-to-change and self-enhancement (Ungvary, McDonald, & Benish-Weisman, 2018). They also identified an *Undifferentiated* value profile, in which adolescents reported similar levels of endorsement across values. We expect to find similar profiles in younger children, as children as young as five have been consistently found to make trade-offs that reflect the relations between higher-order values at the sample (Döring et al., 2016) and, more recently, at the individual level (Lee et al., 2017). In addition, we also expect to find differences in the prevalence of value profile membership by gender and age.

Value Priorities Across Gender

Gender is one of the most basic social categories. It is associated with variability in cognition (Miller & Halpern, 2014) and behavior (Card, Stucky, Sawalani, & Little, 2008), explained by several factors including biology, socialization, and social structure (Leaper & Friedman, 2007). For example, girls are socially expected to be caring and other oriented, whereas boys are socially expected to be dominant and self-oriented (Miedzian, 2002).

Gender has also been consistently associated with weak to moderate differences in value importance among adolescents and adults. Males are more likely to prioritize self-enhancement values, whereas females are more likely to prioritize self-transcendence values (Benish-Weisman & McDonald, 2015; Schwartz & Rubel, 2005). Children's value priorities have been found to follow similar patterns (Knafo & Spinath, 2011; Uzefovsky et al., 2016).

Value Priorities and Change Across Age

Values are conceptualized as individual characteristics that remain relatively stable over time (Bardi & Goodwin, 2011); however, value change has been documented as a result of life events in adults and adolescents (Bardi, Buchanan, Goodwin, Slabu, & Robinson, 2014; Daniel, Fortuna, Thrun, Cioban, & Knafo, 2013), and as a result of age-related maturation (Bardi & Goodwin, 2011; Daniel & Benish-Weisman, 2018). With age, environments set ever changing demands, triggering an adaptation of one's values in order to maximize opportunities and well-being (Döring et al., 2016; Gouveia, Vione, Milfont, & Fischer, 2015).

In children and adolescents, the process of age-related value change is likely to be complex, as developmental factors combine with individual characteristics, specific environments, personal experiences, and significant life events (Daniel & Benish-Weisman, 2018; Döring et al., 2016). This may lead to somewhat idiosyncratic patterns in the process of values development (Krettenauer & Hertz, 2015). At the same time, during middle childhood, children make substantial strides in their metacognitive abilities or knowledge about their cognitions, emotions, and goals (Schneider, 2008). These may lead to age-related changes in value priorities.

During middle childhood, one may expect development in a variety of values. Research has consistently found increases in the prevalence of moral reasoning and moral emotions over time (Malti & Ongley, 2014). These developments have been associated with the maturation of cognitive and socioemotional skills, such as perspective taking and self regulation, as well as accumulated experience, positive feedback from socialization agents and contextual opportunities (Carlo, 2014). However, findings regarding the development of prosocial behavior during middle childhood are less consistent. Although cross-sectional studies report a gradual increase in prosocial behavior with age (Eisenberg, Spinrad, & Sadovsky, 2006), recent longitudinal studies report inconsistent results (Malti & Dys, 2018). These developmental transformations may be associated with increased importance of self-transcendence values and a simultaneous decrease in the importance of self-enhancement values (Daniel, Dys, Buchmann, & Malti, 2014).

Middle childhood years, and more specifically late middle childhood (9–11 years of age), represent a transition toward adolescence. Adolescents are more likely than younger children to seek self-differentiation and autonomy (Bradley, Pennar, & Iida, 2015; Koepke & Denissen, 2012) and demand independent decision making (Alonso-Stuyck, Zacarés, & Ferreres, 2018). In late middle childhood, signs of this process may already be evident. These developments are likely to be associated with increased importance of openness to change values that reflect aspirations for independence of thought and action and readiness for change, as well as a simultaneous decrease in the importance of conservation values that stress self-restriction and preservation of the past.

The hypothesized pattern of values development was found in one cross-sequential study of the values of children between 7 and 13 years of age in Poland (Cieciuch et al., 2016). The researchers found an increase in openness to change and decrease in self-enhancement and conservation values during middle childhood. However, this study examined changes in individual values, rather than value profiles. No study was found to examine developments in values as a coherent system during middle childhood.

Value Profiles and Social Behavior

Values have been found to guide a wide variety of behaviors in adults (Bardi & Schwartz, 2003; Roccas & Sagiv, 2010; Skimina et al., 2018). Values-behavior relations have also been examined in some studies of adolescents (e.g., Benish-Weisman, 2015; Knafo, Daniel, & Khoury-Kassabri, 2008; Ungvary et al., 2018; Vecchione, Döring, Alessandri, Marsicano, & Bardi, 2016). However, just three recent studies established associations between values and behavior among children between 5 and 12 years of age (Abramson, Daniel, & Knafo-Noam, 2018; Benish-Weisman et al., 2019; Vecchione et al., 2016).

Most studies of value-behavior relations in adolescents and children have focused on social behaviors (i.e., direct aggressive and prosocial behavior). Prosocial behavior has been found to be positively associated with self-transcendence values and negatively with the opposing self-enhancement values, in children aged 5–12 years (Abramson et al., 2018;

Benish-Weisman et al., 2019). In contrast, aggressive behavior has been positively related to self-enhancement values and negatively with the opposing self-transcendence values in adolescents (Benish-Weisman, 2015; Knafo et al., 2008). However, these social behaviors were less consistently associated with conservation and openness to change values (Benish-Weisman, 2015; Benish-Weisman et al., 2019; Daniel, Bilgin, Brezina, Strohmeier, & Vainre, 2015). For instance, Benish-Weisman et al. (2019) found positive relations between prosocial behavior and openness to change values in 10–12 year olds, but negative relations in 6–7 year olds.

We propose that some of this inconsistency may be understood by the examination of value profiles, which describe the way in which value priorities combine within individuals over time. For example, Ungvary et al. (2018) found that adolescents who prioritize self-transcendence values were less likely to show aggression if they also prioritized conservation (the Social-Focus profile), but not if they also prioritized openness to change (the Growth-Focus profile) values. Furthermore, both of these groups were less likely to behave aggressively than adolescents who prioritized self-enhancement and openness to change (the Self-Focus profile) values; however, no profile differences were found in the likelihood of behaving prosocially (Ungvary et al., 2018). To the best of our knowledge, research has not yet examined the association between value profiles and social behavior longitudinally.

This Study

This study is the first to combine longitudinal and cross-sectional analysis to provide new insight into value profiles and their development in middle childhood. This study has four objectives. First, we expect to find *groups of children with different, but cohesive value profiles that reflect the compatibilities and conflicts among values (H1a)*. We also expect these differences to reflect similar value profiles to those recently found in adolescents (Ungvary et al., 2018), *including Social-Focus, Growth-Focus, Self-Focus, and Undifferentiated profiles (H1b)*.

Second, we extend research examining gender differences in value priorities (Abramson et al., 2018; Benish-Weisman & McDonald, 2015; Schwartz & Rubel, 2005) to gender differences in value profiles in middle childhood. We hypothesize that *girls will be more likely to be members of value profiles that prioritize self-transcendence values than boys, and that boys will be more likely to be members of value profiles that prioritize self-enhancement values than girls (H2).*

Third, we investigate the development of value profiles longitudinally over 2 years, and among two age groups of children between 5 and 10 years of age. We hypothesize that *older children will be more likely to be members of value profiles that prioritize openness to change and self-transcendence values than younger children (H3).*

Finally, we add new insight into value-behavior relations by investigating associations between value profile transition and aggressive and prosocial behavior. On the basis of the past studies of value-behavior relations (e.g., Abramson et al., 2018; Benish-Weisman, 2015), we hypothesize that a *higher likelihood of membership over time in a profile that places importance on self-transcendence and conservation values, and less importance on self-enhancement values, will be associated with more prosocial behavior (H4a) and less aggressive behavior (H4b).*

We test these hypotheses in a sample of Australian primary school children (aged 5–12 years). In order to investigate intraindividual change over an extended period of development, students were surveyed twice, 2 years apart. Thus, the study included cross-sectional and longitudinal design elements. A previous longitudinal study of values in middle childhood indicated moderate stability of values across 1 year, and low to moderate stability across 2 years (Cieciuch et al., 2016). Thus, a period of 2 years is expected to be an appropriate length of time to capture change in values in middle childhood.

Method

Participants and Procedures

The sample consisted of 609 Australian primary school children. Of these children, 447 were present at Time 1 (73%), and 509 were present at Time 2 (84%). The children (51% female) were between the ages of 5 and 10 years (M_{age} = 7.25 years, SD = 1.53); with 54% being between the ages of 5 and 7 and 46% between the ages of 8 and 10 at Time 1.

Consent for participation was obtained from the school, parents, and children. Children with cognitive disabilities were excluded from the analysis. The values instrument was administered in the school's computer laboratories to class groups for 7–10 year olds and small groups of two to five children for 5–6 year olds, following a brief introduction. The survey completion time was approximately 20 min for older children and 30 to 40 min for younger children who needed assistance with computer mouse movement (5 and 6 year

olds). At Time 2, both values and social behaviors were elicited. The school is located in a middle class suburban area, where 63% of adults have at least some education beyond high school.

Measures

Value Importance

We used Lee et al.'s (2017) revised Animated Values Instrument. The instrument is built on the basis of best-worst scaling theory (Louviere, Flynn, & Marley, 2015), which extends the theory underlying paired comparisons (i.e., Random Utility Theory; Thurstone, 1927) to a multiple choice situation. Specifically, each value animation is embedded into comparison sets of five value animations based on a balanced Youden experimental design. Across 21 subsets, each animation was seen five times and paired with every other animation once. Children were asked to choose which of the five value animations is most like them and which is least like them in each subset. A screenshot of the first subset is provided in Supporting Information.

The value animations were developed to increase young children's comprehension of values content by including visual, auditory, and written cues (Collins, Lee, Sneddon, & Döring, 2017). Each 3–5 s animation was designed to depict a value as a desirable motivational goal. For example, the achievement animation shows a child standing on a first place podium, while saying, "I want to be the best."

Respondent scores for each value item were calculated using the simple best minus worst method (Marley & Louviere, 2005). Specifically, we subtracted the number of times a value animation was chosen as "least like you" from the number of times the same value animation was chosen as "most like you." We divided these scores by five (the number of times each item appeared in the instrument) to produce scores ranging from −1 to +1, following Lee et al. (2017). Higher scores indicate greater value importance, with zero being the mid-point of the scale. Following Ungvary et al. (2018), we calculated higher order value subscales for analysis, by averaging the item scores. Equivalence over time of the measure is described in Supporting Information.

Since best-worst scaling relies on choice frequencies to estimate the latent value of a construct, the appropriate measure of reliability is consistency of choice (Collins et al., 2017). We assessed the consistency of choice across value items by examining the number of times each child chose their most (least) important value. Following Collins et al. (2017), children were considered to be highly consistent when a value was chosen 4 or 5 times of the 5 times the item appeared, consistent when a value was chosen 3 of 5 times, and inconsistent if no value item was chosen at least 3 of the 5 times. In Time 1, 70% of children were highly consistent, 22% were consistent, and only 8% were inconsistent in their choices. In Time 2, 80% of the children were highly consistent, 18% consistent, and only 2% inconsistent.

Social Behavior

We used peer nominations (McDonald, Benish-Weisman, O'Brien, & Ungvary, 2015) to assess direct aggressive and prosocial behavior. For each item, children were given a list of the names of students in their class and asked to "circle the names of the children who fit this behavior." Three items measured direct aggressive behavior (i.e., "hits and pushes," "starts fights," "says mean things"; $\alpha = .95$ (, and three measured prosocial behavior (i.e., "cooperative," "helpful," "kind"; $\alpha = .91$). A child's score for each behavior was computed as the number of nominations the child received for that item, divided by the total number of classmates who could have nominated that child for that item. Final scores were standardized within all participating students within a class. The three items measuring each behavior were aggregated to form direct aggressive and prosocial behavior scores.

Analysis Plan

Latent Transition Analyses (LTA) models (Nylund, Asparouhov, & Muthén, 2007) were used for the main analysis. Prior to estimation, we applied the following procedure for treatment of missing data. The original sample included missing data of two types. First, it included planned missing values: participants who could be present at only one time point as they had not yet entered the school at Time 1 (those in Preprimary and first grade at Time 2) or graduated the school before Time 2 (those in fifth, sixth, and seventh grade at Time 1). These participants were not included in this study, as we could not theoretically estimate their value importance at one of the time points. Second, it included missing values due to attrition: participants who were present at one time point but not the other due to unknown reasons. For these missing values we applied multiple imputation in Mplus 7 (Muthén, & Muthén, 2012); a method shown to be one of the most effective for

handling missing data in longitudinal studies (Allison, 2002). In this method, we predicted the missing values on the basis of known information, in the form of the study variables. The missing values were predicted and replaced 20 times, to create 20 imputed datasets and thus reduce bias due to the process of imputation. We then conducted the analysis separately for each imputed dataset. The parameter estimates are an aggregation over the 20 fitted models, taking into account variance within and between imputed datasets.

We estimated LTA models (Nylund et al., 2007), comparing latent profile solutions for up to five profiles, based on previous findings (Ungvary et al., 2018). To determine the optimal solution, we examined several fit statistics, including the Akaike information criterion (AIC), the Bayesian information criterion (BIC), and the sample-adjusted BIC (SABIC). A lower value on each of these indices indicates a better-fitting model. In addition to the fit indices, we used parsimony, theoretical justification, and interpretability to determine the optimal number of profiles (Kam, Morin, Meyer, & Topolnytsky, 2016).

In order to assess change in the profile composition over time, we estimated a model restricted to equality of value profiles between the two time points. We compared the free model, and the one restricted to time-invariance, using a log-likelihood test adapted for multiple imputation (Meng & Rubin, 1992). We used the final models, restricted to equality across time, to predict profile membership by covariates. As previously advised, covariates were not included simultaneously with the profile model estimation (Nylund-Gibson & Masyn, 2016). We first estimated the probability of membership in each profile at each time point by conducting separate models for gender by age groups. Data were divided into two relatively equal age groups to allow for samples large enough to show the distribution of profiles. Then, we estimated the probability of transition between profiles, using two multinomial logistic regression analyses to predict the profile membership and transition between profiles within gender and age groups. As an easy to interpret parameter, we report the probability of transitioning between profiles across time points, conditional on gender or age.

Finally, we predicted social behavior at Time 2 by likelihood of membership in the profile group that placed the most importance on self-transcendence and conservation values and least importance on self-enhancement values at Time 2, conditional on Time 1 profile membership (i.e., membership in Time 1 profiles). Likelihood of profile membership is a more nuanced measure than nominal group membership, as it incorporates the level of similarity of each individual to the profile. By utilizing it, we do not ignore the variability in typicality within each profile. We estimated whether likelihood of stable membership in this group, or transition into it, predicted social behavior, using regression models, controlling for age. Social behavior (aggressive and prosocial) was assessed in two separate regression models.

Results

Descriptive Statistics

Means for higher order values, are displayed in Table 1. *T*-tests indicated that all values and social behaviors differed by gender, with females reporting higher levels of self-transcendence (female $M_{T1} = .24$, $SD = .16$, $M_{T2} = .19$, $SD = .17$; male $M_{T1} = .17$, $SD = .18$ $M_{T2} = .10$, $SD = .10$) and conservation values (female $M_{T1} = .14$, $SD = .16$, $M_{T2} = .12$, $SD = .16$; male $M_{T1} = .07$, $SD = .25$ $M_{T2} = .03$, $SD = .16$), as well as higher levels of prosocial behavior (female $M = .41$, $SD = .90$; male $M = -.35$, $SD = .80$) than boys, whereas boys reported higher levels of self-enhancement (female $M_{T1} = -.58$, $SD = .28$, $M_{T2} = -.38$, $SD = .36$; male $M_{T1} = -.42$, $SD = .37$ $M_{T2} = -.16$, $SD = .39$) and openness to change values (female $M_{T1} = -.01$, $SD = .16$, $M_{T2} = .00$, $SD = .22$; male $M_{T1} = .07$, $SD = .19$ $M_{T2} = .07$, $SD = .25$), as well as aggressive behavior than girls (female $M = -.26$, $SD = .61$; male $M = .22$, $SD = 1.17$; all ps $< .01$).

Correlations between higher order values at Time 1 and Time 2, and with gender and age, are also displayed in Table 1. Positive correlations of the same value across time show that during middle childhood, low to moderate stability is found in value importance, with most change over time being in openness to change values. As expected, age was positively associated with self-transcendence and negatively associated with self-enhancement values (Time 1 and 2). Aggressive behavior was positively associated with self-enhancement (Time 1 and 2) and openness to change (Time 1) and negatively associated with conservation (Time 1 and 2) and self-transcendence values (Time 1). Prosocial behavior was positively associated with self-transcendence and conservation values and negatively associated with self-enhancement values (Time 1 and 2).

Unconditional LTA

The fit indices for the 2- to 5-profile models of Latent Transition Analysis (Table 2) indicate that the 3- and 4-profile models improved the fit to the

Table 1
Means, Standard Deviations, and Correlations Between Values, Gender, Age, and Social Behavior

	M	*SD*	OC T2	ST T2	CO T2	SE T2	Gender	Age	Aggressive behavior	Prosocial behavior
M			.04	.15	.08	−.27				
SD			.24	.18	.17	.39				
Correlations										
OC T1	.03	.18	**.18****	−.05	−.05	.01	−.22**	.05	.10*	−.04
ST T1	.21	.17	−.10	**.38****	.13*	−.37**	.20**	.19**	−.11*	.10*
CO T1	.11	.17	−.18**	.08	**.35****	−.29**	.21**	−.05	−.10*	.13**
SE T1	−.50	.33	.04	−.24**	−.17**	**.40****	−.24**	−.20**	.14**	−.13**
Gender			−.16**	.27**	.27**	−.28**	1.00**			
Age	7.25	1.53	.15	.33**	.04	−.36**	.01	1.00**		
Aggressive behavior	−.03	.96	.03	−.08	−.13*	.15**	−.25**	−.11*	1.00**	
Prosocial behavior	.04	.94	−.03	.22**	.14**	−.24**	.41**	−.10*	−.52**	1.00**

Note. Stability in the profile highlighted in bold. OC = openness to change; ST = self-transcendence; CO = conservation; SE = self-enhancement; T1 = Time 1; T2 = Time 2.
*$p < .05$. **$p < .01$.

data based on all three indicators, relative to simpler models. The 5-profile model improved the fit to a much lesser, or even marginal, extent. It also reduced entropy substantially. Thus, the 4-profile model was chosen, based on these indicators, parsimony, and compatibility with a previous study of adolescents (Ungvary et al., 2018).

We then examined the stability of the 4-profile model over time, by comparing solutions where profiles (1) were allowed to vary freely across the two time points and (2) were restricted to be equal across time points. A likelihood ratio test of the imputed datasets comparing the two competing models produced a nonsignificant result (D (16) = .07, p = 1.00), indicating similarity in profiles across time. Thus, the restricted, simpler model in which the same profile patterns are estimated at both time points was used in all further analysis.

The latent class means of higher order value importance for the four profiles are displayed in Figure 1. We applied multiple regression to test whether the profiles differed significantly in their higher order value importance. Value importance at each time point was predicted by the dummy coded most likely value profile membership, against the reference category of the Undifferentiated profile. All profiles differed from the Undifferentiated profile significantly on all values at Time 1. At Time 2, the Self-Focus profile differed from the Undifferentiated profile significantly in all higher order values; however, the other profiles differed on some, but not all, higher order values. Specifically, the Social-Focus profile differed from the Undifferentiated profile on self-transcendence and self-enhancement values, whereas the Growth-Focus profile differed on openness to change and conservation values (all significant ps < .01). The four profiles were labeled to reflect the relative importance placed on the systems of values described by Schwartz (2012):

1. The *Social-Focus profile* attributed the highest importance to self-transcendence and then conservation values, the lowest importance to self-enhancement, with openness to change values being near the mid-point of the scale. It was the most prevalent profile at Time 1 (35% of children) and Time 2 (62% of children).
2. The *Growth-Focus profile* attributed the highest importance to openness-to-change and then self-transcendence values, the lowest importance to self-enhancement values, with conservation values being near the mid-point of the scale. It was the fourth most prevalent profile at Time 1 (15% of children), but this increased to 20% at Time 2.

Table 2
Fit Indices of Latent Transition Analysis Models

Profiles	Entropy	AIC	BIC	SABIC
2	0.810	−1,906.35	−1,787.26	−1,872.95
3	0.805	−2,142.22	−1,965.75	−2,092.74
4	0.781	−2,282.40	−2,039.75	−2,214.36
5	0.752	−2,352.88	−2,036.23	−2,264.82

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion; SABIC = sample-adjusted BIC.

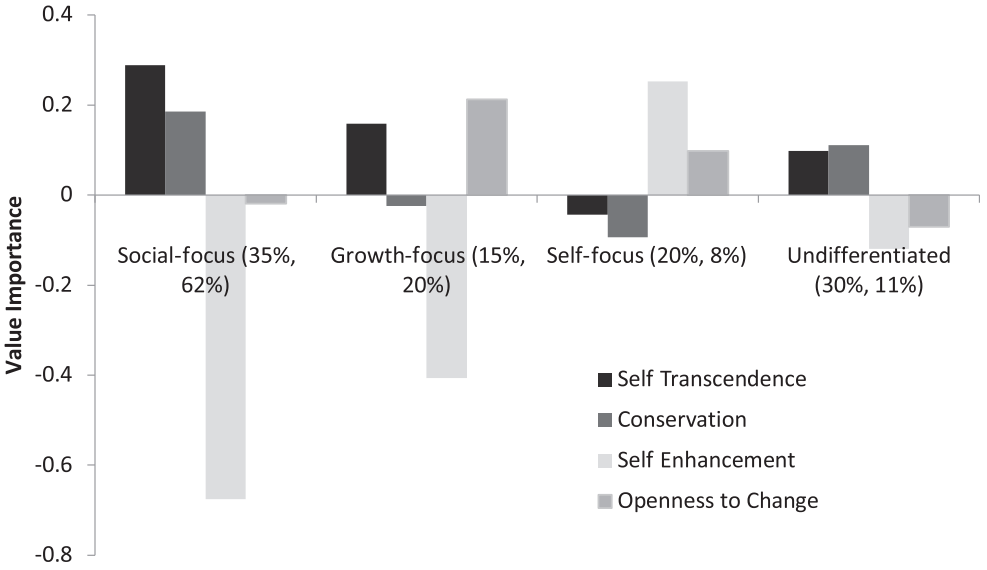

Figure 1. Latent class profile means of higher order value importance, equivalent across time points, and proportion in the sample at Time 1 and Time 2, in brackets respectively.

3. The *Self-Focus profile* attributed the highest importance to self-enhancement values, a positive tendency toward openness to change values and negative tendency toward self-transcendence and conservation values. It was the third most prevalent profile at Time 1 (20% of children), but this reduced to 8% at Time 2.
4. The *Undifferentiated profile* produced scores around the mid-point of the scale for all values, it was the second most prevalent profile at Time 1 (30% of children), but this reduced to 11% at Time 2.

Latent Profiles Membership Distribution by Gender and Age

The proportion of children in each profile group by age and gender at Time 1 (see Figure 2), shows large differences in the prevalence of value profiles. The profile distribution differs significantly between boys and girls ($\chi^2(3) = 109.16$, $p < .001$) and between younger and older children ($\chi^2(3) = 131.99$, $p < .001$). The two most prevalent profiles for younger (5–7 years) boys (38% Self-Focus and 41% Undifferentiated) were the least prevalent for older (8–10 years) boys (23% and 14%, respectively), and

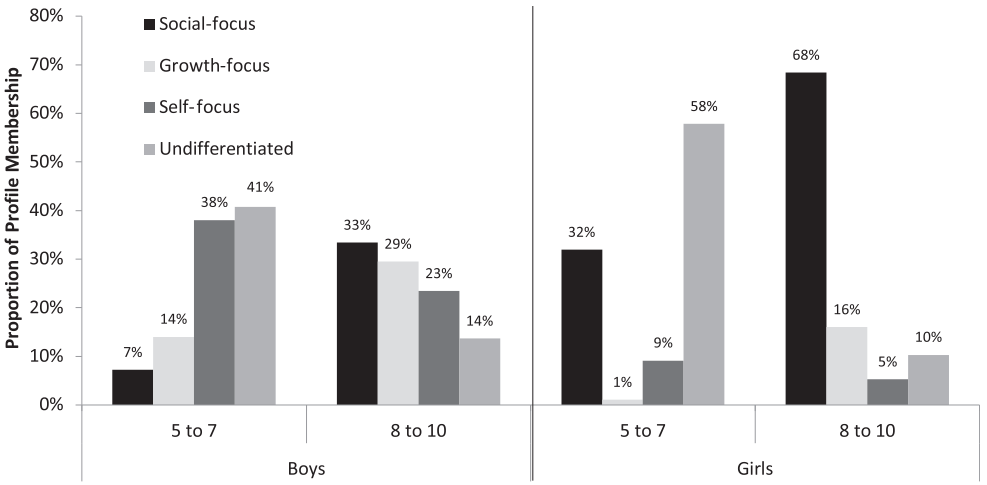

Figure 2. Proportion of children in each profile of value importance at Time 1, by gender and age.

the two most prevalent for older boys (33% Social-Focus and 29% Growth-Focus) were the least prevalent for younger boys (7% and 14%, respectively).

In contrast, for younger girls, the two most prevalent profiles were the Social-Focus (32%) and Undifferentiated (58%) profiles; however, the vast majority of older girls were in the Social-Focus (68%) profile, with only 10% in the Undifferentiated profile. The proportions of girls in the Growth-Focus (1% younger and 16% older girls) and Self-Focus profiles (9% younger and 5% older girls) were also very different from boys. Thus, the cross-sectional age and gender data indicate potential development of values that we investigate longitudinally in the next section.

Transition Over Time and Between Profiles Within Gender and Age Groups

Transitions over time show two major simultaneous trends (Table 3). The first trend is stability in profile membership over the 2-year period. This is indicated by the largest proportion of children staying in the same profile for all but the Undifferentiated profile. The second trend is movement into the Social-Focus profile. This was a clear trend from the Growth-Focus and Undifferentiated profiles, but not from the opposing Self-Focus profile, whose members were evenly distributed between all four profiles at Time 2.

Age and Gender Effects

We found significant differences in the prevalence of transitions between profiles by gender and age groups, as described in the following section. All transitions not mentioned below were not significantly different across groups.

1. Social-Focus transitions: Girls were more likely than boys to stay in the Social-Focus profile (88% vs. 73%, respectively; $\chi^2 = 6.75$, $p = .01$), whereas boys were more likely than girls to move from the Social-Focus to the Growth-Focus profile (25% vs. 8%, respectively; $\chi^2 = 10.64$, $p = .001$).
2. Growth-Focus transitions: Boys were more likely than girls to stay in the Growth-Focus profile (60% vs. 33%, respectively; $\chi^2 = 5.13$, $p = .02$), whereas girls were more likely than boys to move from the Growth-Focus to the Social-Focus profile (58% vs. 32%, respectively; $\chi^2 = 4.99$, $p = .03$). Furthermore, younger children were more likely than older children to move from the Growth-Focus to the Undifferentiated profile (12% vs. 0%, respectively; $\chi^2 = 7.42$, $p = .01$).
3. Self-Focus transitions: Boys were more likely than girls to move from the Self-Focus to the Growth-Focus profile (30% vs. 9%, respectively; $\chi^2 = 4.23$, $p = .04$), whereas girls were more likely than boys to move from the Self-Focus to the Undifferentiated profile (57% vs. 14%, respectively; $\chi^2 = 19.79$, $p < .01$). Furthermore, younger children were more likely than older children to move from the Self-Focus to the Undifferentiated profile (30% vs. 5%, respectively; $\chi^2 = 9.81$, $p = .002$), whereas older children were more likely than younger children to move from the Self-Focus to the Growth-Focus profile (45% vs. 14%, respectively; $\chi^2 = 14.16$, $p < .01$).

Prediction of Social Behavior by Probability of Membership in Transitions to the Social-Focus Profile at Time 2

We predicted social behavior (direct aggressive and prosocial behavior) by likelihood of membership in the four transition groups (a continuous measure of inclusion probability). All four groups were conditioned on the likelihood of membership in the Social-Focus profile at Time 2. We focused on this profile for theoretical and methodological

Table 3
Transition Between Profiles at Time 1 and Time 2

		Time 2			
		Social-Focus, %	Growth-Focus, %	Self-Focus, %	Undifferentiated, %
Time 1	Social-Focus	**84**	12	0	3
	Growth-Focus	41	**50**	6	3
	Self-Focus	22	26	**31**	22
	Undifferentiated	73	9	3	**16**

Note. Stability in the profile highlighted in bold.

reasons. Theoretically, we hypothesize that membership in the profile that attributes most importance to self-transcendence and conservation and least importance to self-enhancement values (i.e., the Social-Focus profile) would be most strongly associated with less direct-aggressive and more prosocial behavior (Abramson et al., 2018; Benish-Weisman, 2015). Methodologically, other profiles included smaller numbers of children, making the estimation of transition between profiles impossible.

Results for the following four transition groups are shown in Table 4:

1. Transition group 1 Social-Focus Time 1 to Social-Focus Time 2;
2. Transition group 2 Growth-Focus Time 1 to Social-Focus Time 2;
3. Transition group 3 Self-Focus Time 1 to Social-Focus Time 2; and
4. Transition group 4 Undifferentiated Time 1 to Social-Focus Time 2.

As expected, prosocial behavior was positively associated, and direct-aggressive behavior negatively associated, with probability of membership in Transition group 1 (Social-Focus to Social-Focus). No significant associations were found with membership in the other transition groups (2, 3 and 4).

Discussion

The study of human values has been of interest to psychologists for decades; however, most of this research has focused on adults and, to a lesser extent, adolescents. Very little research has examined children's values, and especially how values develop and change in childhood. In this paper, we investigated value profiles and profile transitions in middle-childhood for the first time. While we found similar value profiles in middle childhood to those found in adolescence, the proportion of children in each profile and the patterns of transition differed substantially. In our study, the vast majority of children either remained in the same profile across the 2-year period or moved into the Social-Focus profile, which prioritized self-transcendence and conservation over self-enhancement values. We also found, for the first time, significant relations between profile membership probability and transitions and peer reported social behaviors, including prosocial and aggressive behaviors.

Table 4
Regression Models Predicting Social Behavior by Probability of Conditional Profile Membership

	Aggressive behavior		Prosocial behavior	
Variable	Estimate	*SE*	Estimate	*SE*
PoM Social-Focus Time 1/Social-Focus Time 2	−.38*	.12	.40**	.12
PoM Growth-Focus Time 1/Social-Focus Time 2	−.45	.30	.47	.27
PoM Self-Focus Time 1/Social-Focus Time 2	.13	.32	−.29	.30
PoM Undifferentiated Time 1/Social-Focus Time 2	−.15	.16	.20	.14

Note. PoM = Probability of membership.
*$p < .05$. **$p < .01$.

Systems of Value Importance

This study applied a novel approach to the examination of value systems in children, finding support for the existence of well-organized systems of values that reflect the Schwartz (1992) values theory. Our profiles show that the same values (e.g., self-transcendence) can be pursued in combination with neighboring values (e.g., openness-to-change or conservations values), but not opposing ones (e.g., self-enhancement). These results help to substantiate the Schwartz values theory in middle childhood, building on prior research that found self-reported values to reflect the theoretical structure both across (e.g., Döring et al., 2016) and within (Lee et al., 2017) children. Moreover, these combinations of values support the formation of cohesive value priority systems. It is likely to be the combination of values as they exist within children, rather than the prioritization of individual values in isolation, that reveal children's motivations.

We found three value profiles (i.e., Social-Focus, Growth-Focus and Self-Focus profiles) that reflect the trade-offs inherent in basic human requirements, as described by Schwartz (2012). We also found an Undifferentiated profile that, we speculate, may include those who have not yet decided on their value priorities or are in the process of value change. These profiles were not only similar to those found by Ungvary et al. (2018) in adolescents, but also relatively similar across the 2 years examined in our study. While we found some differences between our children's value profiles and Ungvary et al.'s (2018) adolescent value profiles (e.g., we found stronger distinctions in self-enhancement across the profiles and higher levels of

importance attributed to self-transcendence than openness to change in the Social-Focus profile), the consistency of results across studies suggests that these profile types are characteristic of the value systems of youth. However, as expected we found differences in the prevalence of profile membership by age and gender.

First, the Social-Focus value profile, emphasizing self-transcendence and conservation over self-enhancement values, was the most prevalent among children, especially at Time 2 (62%), and was characterized by both stability and transitions over time into this profile. Children who reported a Social-Focus profile at Time 1 were highly likely to remain in this profile. Furthermore, this stability was stronger for girls than boys, and girls were also more likely to move from the Growth-Focus profile into this one.

The Social-Focus profile is aligned with the values considered by many to be moral values (Sverdlik, Roccas, & Sagiv, 2012). These values focus on care and consideration toward the social environment. Thus, individuals in this profile are likely to prioritize caring for others, cooperating within groups, accepting external authority, and fitting in rather than rebelling against the social order (Schwartz et al., 2012). Evolutionary psychology suggests humans are highly likely to attribute importance to socially focused values, as these values enable societies to survive by promoting cooperation in pursuit of common goals (Tomasello & Vaish, 2013). Indeed, pan-cultural studies established that social focused values are highly important among adults (Schwartz & Bardi, 2001) and children alike (Döring et al., 2016).

Our results support the argument of an increase in adherence to social norms during middle childhood. These results echo past studies following the moral development of children. During middle childhood, children report increasing levels of moral emotions and reason in more moral, and less self-oriented ways (Malti & Ongley, 2014). Yet, the literature is still not clear whether advances in moral development are accompanied by increases in prosocial behavior (Malti & Dys, 2018).

Previous studies lead us to believe that in early adolescence, conservation values decrease in importance. However, the current sample ends at early adolescence. It is possible that following the children to a later age will show a reversal of effects. Conversely, the high frequency of the Social-Focus profile in the older children sampled here may stem from an effect of formal schooling, pushing children in the direction of disciplined behavior, and conformity to group norms.

Second, the Growth-Focus value profile, emphasizing openness to change and self-transcendence over self-enhancement values, was least prevalent among children at Time 1 (15%), and somewhat more prevalent at Time 2 (20%). Stability in this profile was greater for boys than girls; and boys were also more likely than girls to move from the Self-Focus and the Social-Focus profiles into this profile at Time 2. In addition, older children were more likely than younger children to move from the Self-Focus profile into this profile and less likely to move from this profile to the Undifferentiated profile.

The results offer some evidence of an increase in the centrality of the Growth-Focus profile as children age. Children in the current sample are approaching early adolescence at the end of the study. Toward, and during adolescence, individuals are more likely to direct their behavior internally and independently, seeking separation and autonomy in decision making (Alonso-Stuyck et al., 2018; Bradley et al., 2015; Koepke & Denissen, 2012). Our results support this by showing an increase in the prevalence of this profile with age and increased stability in older children who are less likely to leave it.

A similar Growth-Focus profile group was found in Ungvary et al.'s (2018) study of Israeli and American mid-adolescents (M_{age} = 13.52, SD = .65). However, in their study membership in the Growth-Focus profile was modest in prevalence, compared to this study (12%; Ungvary et al., 2018). The results may be attributed to differences in cultural backgrounds of participants (Australia vs. Israel) or differences in age (middle childhood vs. mid-adolescence). Future studies should examine cultural differences in value profiles within a developmental period.

Third, the Self-Focus value profile, emphasizing self-enhancement and a tendency toward openness-to-change values, was modestly prevalent (20%) among children at Time 1 and least prevalent (8%) at Time 2. There was less stability in this profile than for the Social- and Growth-Focus profiles and no differences in stability by gender or age. At both time points, this profile was more prevalent in boys than girls, and included a sizable number of the young boys (38%). There was very little within person transition into this profile.

The Self-Focus profile prioritizes the needs of the individual over the needs of others.

Our results suggest that this pattern is more characteristic of younger children, and specifically of younger boys. In the developmental literature, young children have been found to utilize Self-Focused moral reasoning and be motivated to fulfill the needs of the self, rather than adhere to moral rules (Nunner-Winkler, 2007). They were also less likely to report moral emotions than older children (Malti & Ongley, 2014). Our study suggests that a focus on the self can be accompanied by openness to change values including prioritization of enjoyment, variety, or independence. Interestingly, no child transitioned from the Self-Focus profile into the opposing Social-Focus profile. It may be that the differences between the profiles are too substantial to bridge within 2 years of development. A follow-up of children over longer periods of time should answer the question of whether such change might gradually occur.

The results are also in line with past studies showing consistent gender differences, where self-enhancement is more important and self-transcendence less important for males than females (Benish-Weisman & McDonald, 2015; Schwartz & Rubel, 2005). These gender differences appear to be prevalent already in the beginning of middle childhood (Knafo & Spinath, 2011; Uzefovsky et al., 2016).

Finally, the Undifferentiated value profile was the second most prevalent profile at Time 1 (30%), but decreased to 11% at Time 2. As might be expected, this profile was the least stable of all four profiles, with only 15% of those children who were in the profile at Time 1 remaining in Time 2. However, girls were more likely than boys to move from the Self-Focus into this profile at Time 2 and younger children were more likely than older children to move from the Self-Focus and Growth-Focus into this profile.

It is possible that the Undifferentiated profile may be a profile individuals adopt during periods of values development and change. As children arrive at early adolescence, they may understand their own characteristics, by applying a process of self-exploration and the formation of identity (Markovitch, Luyckx, Klimstra, Abramson, & Knafo-Noam, 2017).

The decrease in prevalence of the Undifferentiated value profile at Time 2 may also be explained by an increase in moral motivation. During middle childhood children begin with a knowledge of moral rules and regulations that is not fully accompanied by personal commitment to these rules. This commitment develops over time (Malti & Ongley, 2014; Nunner-Winkler, 2007). Our study provides some evidence of this with a major transition from the Undifferentiated profile at Time 1 to the Social-Focus profile at Time 2 (73%).

Surprisingly, the prevalence of the Undifferentiated profile in Ungvary et al.'s (2018) study of adolescents was much higher than at either time period in our study. This may reflect biological, cognitive, and social transitions in adolescence (e.g., Steinberg, 2005), that result in value change. In this period, many adolescents are in the process of exploring their values (Crocetti, 2017; Meeus, 2011). Thus, the Undifferentiated profile may be a signal of value change and exploration. In that sense, children adopting the Undifferentiated profile, after committing to a differentiated profile in a previous stage, may be children undergoing the process of value change.

Bardi and Goodwin's (2011) dual route to value change model may offer some insight into potential differences in the process of value change in middle childhood and adolescence. The transitions we found in middle childhood, especially those toward the Social-Focus value profile, may occur from a more automatic route to value change that reflects consistent exposure to environmental cues that prime normative (i.e., self-transcendence and conservation) values. In contrast, value change in adolescence may be associated with more effortful processing, as adolescents engage in identity formation.

Value Profile Transition and Social Behavior

Probability of membership in the Social-Focus profile at Time 2 alone was not associated with peer reports of prosocial or aggressive behavior over time. Only stable membership in the Social-Focus profile was positively associated with prosocial behavior and negatively associated with aggressive behavior. Thus, the results suggest that the Social-Focus value profile is most conducive to morality during middle childhood, as children in this age group behave morally not only out of care for the need or rights of others, but also out of social obligation (Hardy, Dollahite, Johnson, & Christensen, 2015).

The lagged effect from the Social-Focus profile membership to prosocial and aggressive behavior may be due to theoretical or methodological reasons. Theoretically, children may understand moral rules well before the age in which they implement them in the form of moral emotion or motivation (Nunner-Winkler, 2007). It is also possible that newly adopted values are not yet integrated within

the self and thus not predictive of current behavior. For that reason, values endorsed for a longer period of time may be more predictive of behavior. Methodologically, the social behavior in this study was measured by peer reports. Peer reports rely on peers' observation of a child's behavior over time and are indicative of both past and present behavior (Dweck, 2002). Thus, children who are more consistent in their behavior over time are likely to be rated more highly by peers who observe their social behavior. These consistent behaviors should be more strongly related to their values at Time 1 and stability in these values.

Strengths, Limitations, and Future Directions

This study has several notable strengths. First, it employed a validated measure of values for middle childhood (Benish-Weisman et al., 2019; Collins et al., 2017; Lee et al., 2017), based on a generally accepted theory (Schwartz, 1992). Second, the study applied a sophisticated understanding of values as systems of motivations, finding strong consistency with the theory of the structure of values. Third, it included both cross-sectional and longitudinal aspects, covering a wide range of ages, while testing changes at the individual level. Finally, the study used peer reports of behavior (averaging all class members observations), which minimizes both same-method bias and social-desirability bias.

At the same time, some limitations should be acknowledged. First, we relied on self-report data for the measurement of values, which can be subject to social desirability bias. However, to date, self-reports are the most prevalent, and arguably the most accurate measure of values, as it is difficult to measure motivations in any other way. Moreover, social desirability has been shown to be a personality trait that is meaningfully related to value importance, not a bias in the reporting of values (Schwartz, Verkasalo, Antonovsky, & Sagiv, 1997). Second, values were measured using a closed-ended forced-choice questionnaire that may have resulted in greater differentiation in values scores than those found in rating scale measures, such as the Portrait Values Questionnaire used by Ungvary et al.'s (2018) in their study of adolescent value profiles. Furthermore, although the results indicate that children prioritize values consistently, and their values were meaningfully interconnected, these results do not fully account for potential differences in the subjective understanding of values during middle childhood. Past research suggested that self-descriptions develop during middle childhood, with increasing reference to internal attributes (Harter, 2012), suggesting that values may be better integrated in the self with age (Krettenauer, Campbell, & Hertz, 2013). Future studies should include an examination of children's conceptualization of values, to contrast them against those of adults. Third, although value profile transition was studied longitudinally, following children who varied in age from 5 to 10 years over a period of 2 years, a longer longitudinal study will verify whether the patterns found among younger and older children in the study are the result of within-individual development or cohort effects. Fourth, the study was conducted in one school in a middle class suburban area in Australia. Although the latent profiles were consistent with those found in Israeli adolescents (Ungvary et al., 2018), the prevalence within each profile may differ across samples, due to differences in environmental factors. Future studies should examine transitions in children from other socio-economic and cultural backgrounds. Fifth, the study operationalized prosocial behavior using peer reports of children being cooperative, helpful, and kind. It is possible that being "kind" can be interpreted as a trait rather than a behavior. However, this is a widely used and validated measure of prosocial behavior (McDonald et al., 2015), and it is likely that peers answer the questions based on observations of children's behaviors. Finally, behavior was studied at Time 2, but not Time 1. Control for previous levels of behavior would strengthen our understanding of the role of value profiles in the prediction of behavior.

In conclusion, we found that children hold value profiles that follow the inherent compatibilities among and conflicts between values, thus strengthening the notion that young children understand value inter-relations. Moreover, children showed substantial stability in value profiles over time, as well as increased crystallization of value priorities and age-related trends toward social norms. Value profile membership over time predicted prosocial and aggressive behaviors, substantiating the importance of understanding value profiles in middle childhood.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Appendix S1. Supplementary material.