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Personal values and social behavior in early childhood: Understanding the contribution of social information processing and attitudes

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Abstract
Values, defined by Schwartz (1994) as basic motivational cognitive structures, guide life goals, transcend contexts, and affect individuals' courses of action differently depending on their preferred values. With young children, an important question that emerges is what factors underlie the linkages between their preferred motivations (i.e., preferred values) and their behavior tendencies in key social contexts. This study proposed one potential socio-cognitive mechanism that may explain how children's values are linked to their prosocial and antisocial behaviors in kindergarten via their values-oriented social information processing patterns (SIP) and their attitudes toward their kindergarten. The sample included 121 children (59 girls; *M*age = 67.45 months). Children's values, values-oriented SIP patterns, and attitudes toward kindergarten class were examined in one-on-one interviews. Teachers reported on the children's social behaviors. Results showed children's preferences for self-transcendence values were linked to their more prosocial behaviors and less antisocial behaviors in class via their self-transcendence values-oriented SIP patterns and their positive attitudes toward kindergarten. The findings offer important insights into the socio-cognitive elements that drive values-behavior relationships, as well as the links between various facets of young children's social cognition and their social behavior in kindergarten.

Keywords Values · Prosocial behavior · Antisocial behavior · Social information processing · Attitudes · Kindergarten children

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Introduction

Values are relatively stable motivational cognitive structures that express individuals' trans-situational goals and guide their daily behaviors as active agents in their own social world (Bardi & Goodwin, 2011; Schwartz, 1994, 2012). There is ample evidence of the important role values play in explaining human behavior across contexts and age groups (e.g., Lönnqvist et al., 2011; Schwartz et al., 2010), including shaping individuals' prosocial and antisocial behaviors, significant indicators of social adjustment (e.g., Benish-Weisman, 2019; Daniel et al., 2020; Knafo et al., 2008; Sagiv et al., 2011). However, our understanding of the socio-cognitive mechanisms underlying how our values influence our social behavior tendencies in a specific social environment (e.g., school or work) remains limited (Sagiv & Roccas, 2021).

Therefore, in this study, we explore a socio-cognitive mechanism that may underpin the links between values and social behaviors by examining the involvement of social information processing (SIP) patterns and attitudes. We based our conceptualization on the values theory proposed by Schwartz (1994) and Crick and Dodge's (1994) SIP theoretical model which proposes that individuals' values, as components of their social schemas, play a role in how they process social information during interactions with others. Further, as individuals prioritize different values (Lee et al., 2022; Schwartz, 2012), their values are likely to influence their SIP patterns in different ways. Individuals' diverse SIP patterns, influenced by the different values they endorse, can shape their daily experiences of social occurrences within a specific social environment, such as school or work. In turn, these experiences can differentially influence their attitudes toward that environment and its related activities (e.g., Denham et al., 2013; van Vianen, 1997; Ziv et al., 2016), ultimately influencing how they act and interact with others within that setting (Ajzen et al., 2018; Salancik & Pfeffer, 1978; see Fig. 1 for the conceptual model).

Our study examined the proposed socio-cognitive mechanism in 5-year-old children. At this age, children are going through major developmental changes that impact their cognitive capabilities, the way they understand themselves and others, and their social skills and conduct (Benson et al., 2013; Dapp & Roebers, 2018; Killen et al., 2018; Rapp et al., 2019). While research has made considerable advances in theory and methods, broadening our understanding of young children's evolving social cognition, encompassing children's values schemas (e.g., Benish-Weisman, 2019; Lee et al., 2017) and their SIP patterns (e.g., Schultz et al., 2010; Ziv & Arbel, 2021), as well as their connections to the children's social behaviors, there is substantial room for further exploration. Specifically, there is a need to explore the mental mechanisms and underlying motivational models guiding children's social conduct, while considering the complex interplay between different facets of their social cognition. Accordingly, we explored the relationships between kindergarten children's values and their prosocial and antisocial behaviors in kindergarten via their values-oriented SIP patterns and their attitudes toward kindergarten.

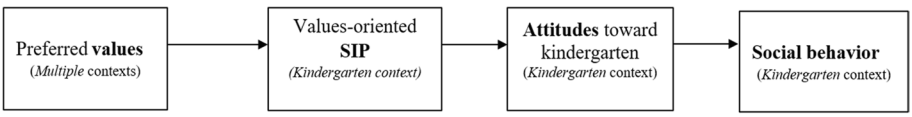


Fig. 1 The study's conceptual pathway model linking kindergarten children's preferred values and social behaviors in class via kindergarteners' values-oriented social information processing (SIP) patterns and their attitudes toward the kindergarten class

Values and social behavior

The values theory underpinning this research was developed by Schwartz (1994). According to Schwartz's theory, values are guiding principles in individuals' lives that motivate their aspirations to achieve desired goals across different life domains (e.g., to be supportive and considerate of family and friends, to be perceived as successful; Rokeach 1973; Schwartz, 1994, 2012). The model differentiates between 10 basic values which can be grouped into four higher-order categorizations divided along two orthogonal bipolar dimensions reflecting opposing motivations (Schwartz & Boehnke, 2004). One dimension underscores the motivational conflict between conservation values (tradition, conformity, and security) that emphasize the avoidance of change through the preservation of the status quo and adherence to formal and informal rules and openness-to-change values (self-direction and stimulation) that advocate for excitement, challenges, and life changes by fostering new ideas and actions. The focus of this study is on the second dimension which illustrates the motivational conflict between self-transcendence values (universalism and benevolence) that promote concern for others' interests and well-being and for nature and self-enhancement values (power and achievement) that advance self-promotion and the aspiration to be successful, dominant, and wealthy.

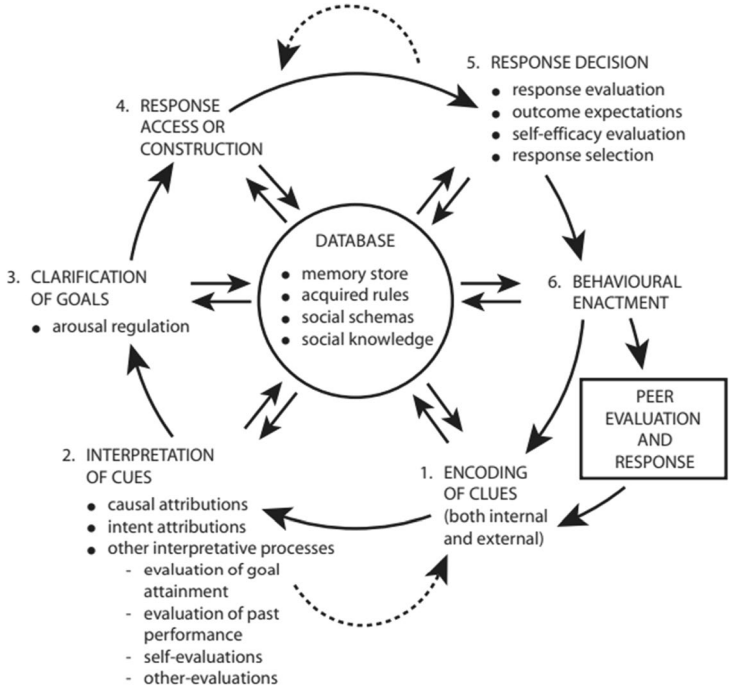
The associations between conservation and openness-to-change values and prosocial and antisocial behaviors, the behaviors of interest in our study, have been found to be inconsistent (e.g., Benish-Weisman, 2019), varying, for instance, based on individuals' developmental stage (e.g., Benish-Weisman et al., 2019). However, the directionality of the associations between self-transcendence and self-enhancement values and individuals' prosocial and antisocial behaviors remains largely consistent. This values dimension expresses the tension between prioritizing caring for others versus caring for self-interests and thus strongly relates to prosocial and antisocial behaviors. Specifically, self-transcendence values exhibit positive associations with prosocial behaviors and negative associations with antisocial behaviors, while the opposite is true for self-enhancement values (Knafo et al., 2008; Misgav et al., 2022; Sanderson & McQuilkin, 2017; Schwartz, 2010). For example, Benish-Weisman and colleagues (2019) showed that in elementary school children (age range 6–12), self-transcendence values are linked to more prosocial behavior, and self-enhancement values are linked to less prosocial behavior. Most of these previous studies focused on school-aged children and older individuals and investigated direct associations between their values and social behaviors. We extended the examination to younger children (5 years old) and explored the potentially mediating role of other aspects within children's social cognition, establishing indirect links between values and prosocial and antisocial behaviors.

While values research has made progress in clarifying the dynamic relationships between values and social behavior, the underlying mechanisms are unclear (Bardi & Schwartz, 2003; Sagiv & Roccas, 2021). Research demonstrates, for example, that contextual and environmental factors (e.g., Bacchini et al., 2015; Knafo et al., 2008), as well as values accessibility (e.g., Maio et al., 2001; Sagiv et al., 2011) and level of importance (Lee et al., 2022), play a role in values-behavior relationships. It would be useful to determine the socio-cognitive mechanisms driving these relationships. In the current study, we empirically explored a potential underlying mechanism; more specifically, we proposed an indirect path between values and behavior via SIP and attitudes.

SIP and attitudes as an underlying mechanism of values-social behavior relationships

Values and SIP

Based on Crick and Dodge (1994), the SIP mechanism can be viewed as an operator responsible for the translation of stored knowledge, such as values schemas, into ongoing enactments. Crick and Dodge's SIP model suggests that as individuals interact socially and encounter social stimuli, they follow a real-time sequence of five mental steps: they (1) encode the social cues, (2) interpret these cues, (3) set related social goals, (4) generate alternative responses, and (5) make evaluations and response decisions. Once a decision is made, they (6) actively enact the chosen response. These core processes are both circular and bidirectional, as each step affects and is affected by old and new social experiences (Ziv & Elizarov, 2019). To date, SIP patterns representing children's inclination to interpret social cues and make social decisions are commonly classified as competent or aggressive, signifying more adaptive or maladaptive patterns, respectively (see Fig. 2; Ziv & Elizarov, 2019). Furthermore, during the preschool years, the response evaluation and decision-making (RED) step (the fifth mental step) has been identified as the most predictive of children's outcomes (Fontaine & Dodge, 2006; Schultz et al., 2010; Ziv, 2012; Ziv & Arbel, 2021), and therefore, it is employed in the current study.



Note. From: Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*(1), 74-101. https://doi.org/10.1037/0033-2909.115.1.74

Fig. 2 Crick and Dodge's (1994) Model of Social Information Processing

A core assumption of the SIP model is that individuals tend to rely on heuristics or schemas (e.g., values schemas) to make fast decisions and facilitate information processing when they deal with multiple stimuli during social interactions. These mental structures are latent, consolidated by past and new experiences, and represented in the SIP model as a "database" that reciprocally affects each of the SIP steps (Crick & Dodge, 1994; Ziv & Elizarov, 2019). The relationships between individuals' latent social mental structures, including hostile knowledge structures and attachment-related knowledge structures, and between their adaptive or maladaptive SIP patterns have previously been studied (Dykas & Cassidy, 2011; Salzer Burks et al., 1999; van Cappellen et al., 2023). In addition, some theoretical studies have suggested ways individuals' important schemas, such as their moral and gender schemas, may shape their SIP steps (Arsenio & Lemerise, 2004; Ostrov & Godleski, 2010). However, to the best of our knowledge, no studies have examined the associations between individuals' values schemas and their SIP patterns. Furthermore, no studies have incorporated elements from both a specific schema's theoretical domain (e.g., a moral schema's theoretical domain) and the Crick and Dodge SIP model into a single measurement to empirically test how such schemas are integrated into the processing of social information, potentially leading to the development of schema-driven SIP patterns.

In this regard, an important hypothesis in values research suggests that the more individuals endorse a value, the greater its influence will be on their mental processes and later outcomes (Lee et al., 2022; Schwartz, 1994). Focusing on SIP as an example of such mental processes, a limited amount of empirical research has demonstrated a link between individuals' preferred values and relevant processes such as decision-making (e.g., Heilman & Kusev, 2020; Sagiv et al., 2011). Yet to the best of our knowledge, no studies in the values research domain have investigated the ways values are linked to the sequential SIP steps (see Fig. 2) taken by individuals when they are faced with a specific ambiguous social situation that requires a response, certainly not in children as young as five. We addressed the gap by examining how kindergarten children's preferred values, which are part of their database, relate to how they process social information. Specifically, we explored how children's preferences for self-transcendence values are reflected in the ways they tend to interpret the social occurrences they engage in and in how they evaluate and make decisions on their social responses to these occurrences, ultimately leading to self-transcendence values-oriented SIP patterns. We also investigated how children's SIP patterns, which are derived from the values they endorse, relate to their more context-specific internal structures, more precisely, their attitudes toward kindergarten, which can then be linked to their social behavior tendencies.

SIP, attitudes, and social behavior

As mentioned, individuals' SIP is shaped by their social mental structures (i.e., their database). Yet real-world experiences, which are influenced by how individuals process the social information around them, can also lead to the formation of memory structures or alter existing mental representations (Crick & Dodge, 1994). For instance, the way individuals tend to process social information can ultimately affect their attitudes toward a key social environment they are part of, based on how they daily experience and react to social stimuli in that setting (e.g., Denham et al., 2013; Zalesny & Ford, 1990; Ziv et al., 2016). This claim was supported by Salancik and Pfeffer (1978) who defined attitudes as constructs that are the product of the information processing performed by individuals when they are attaching meaning to what is happening in their social surroundings.

To illustrate, within the kindergarten class, young children who have a self-transcendence values-oriented SIP pattern (driven by a preference for self-transcendence values) are likely to interpret and perceive their social surroundings in a more prosocial and other-focused manner. This means that during interactions, they may tend to interpret their classmates' and teachers' intentions in more positive or benign ways and set more self-transcendence values-oriented goals, such as prosocial or relational goals, within an ongoing situation (Nelson & Crick, 1999). Subsequently, they may tend to evaluate responses that prioritize the well-being and needs of others more favorably. Eventually, they are also likely to decide to react in a more self-transcendence values-oriented manner, one that will benefit the well-being of others in the class, including making compromises, while promoting close and loving relationships (Rose & Asher, 1999; Wentzel et al., 2018). Given their reactions to others in the class, these children are likely to elicit positive responses (Barry & Wentzel, 2006; Ogelman & Seven, 2012; Rodkin et al., 2013). This kind of social reality, in which children experience others in the class more positively, and others, in turn, perceive them more positively, can ultimately be associated with their more positive attitudes toward their class (Armstrong et al., 2010).

The linkage between SIP and attitudes is even more relevant when considering additional essential components such as the impact that attitudes may have on individuals' behavior. Attitudes, which reflect how individuals generally feel about a particular person, event, or environment, have long been considered a key factor in explaining human behaviors (Ajzen et al., 2018; Albarracín et al., 2005; Kraus, 1995; Wilson et al., 2000), including prosocial and antisocial behaviors (e.g., Davis, 2020; Rutten et al., 2011). To continue the preceding example, children who endorse self-transcendence values (over self-enhancement values) may have more positive attitudes toward their class, given the impact their values may have on how they process social cues in the class environment. We consider this trajectory to be crucial: previous studies have shown children's positive attitudes toward the educational context are associated with more prosocial and less antisocial behavior (e.g., Longobardi et al., 2021; Way et al., 2007; Wilson, 2004).

Current study

This study aims to explore a potential mechanism underlying the associations between young children's values and their social behavior in kindergarten. The mechanism includes the children's values-oriented SIP patterns and their attitudes toward kindergarten (see Fig. 1). We employed a pathways model to examine the hypothesized indirect paths. Specifically, we proposed that children exhibiting a preference for self-transcendence values will demonstrate self-transcendence values-oriented SIP patterns, which will relate to their more positive attitudes toward kindergarten, which further (Path 1/H1:) will correlate with more prosocial behavior and (Path 2/H2:) with less antisocial behavior among the children.

Method

Participants and procedures

One hundred and twenty-one kindergarten children (59 girls; *M*age = 67.45 months, i.e., 5.62 years, *SD* = 6.56 months) took part in the study. All participating children spoke Hebrew as their primary language. Based on the parents' reports, 70 percent of the children came from households where the mothers had a college degree or higher.

Families in the sample had monthly household incomes ranging from US$4000 and US$5400, slightly above the Israeli average (the 2017 census found families in Israel had an average monthly income of around US$4300). The participating children lived in the North and Haifa districts of Israel; they attended 35 kindergarten classes located in various settings, ranging from more urban to more rural areas. On average, each of the 35 teachers assessed around 3 children, mirroring also the median count of 3 children per teacher. The distribution of ratings exhibited variation among teachers; for instance, 17 teachers rated 1–2 children, and 14 teachers evaluated 4–5 students, with only one instance where a teacher reported on a maximum of 13 children. Using the Gpower program and assuming a moderate effect size of 0.25 in a correlation metric, the power of an indirect effect, given the current sample size ($n = 121$), was determined to be 0.80. Consequently, the present study exhibits adequate statistical power.

Data reported here are from a larger study undertaken between 2016 and 2019. Following the required IRB approvals (see below), we contacted kindergarten supervisors and teachers to obtain their consent to conduct the study in the classes under their supervision. As a next step, teachers notified parents about the study via fliers with necessary information and requests for consent and contact information. After obtaining permission from the parents, the research team visited each kindergarten class twice with a gap of one to two weeks between visits. The day before each visit, research assistants contacted the parents of the participating children by phone to request that they inform their children about the scheduled visit the following day. Upon approaching the participating child, the research assistants initially introduced themselves and inquired if the child would like to participate in a one-on-one session. In all instances, the children had already been informed by their parents and teacher and expressed interest in participating in the activity. During these one-on-one sessions, the research assistants interviewed the children to assess their personal values, their values-oriented SIP patterns (using a new preschoolers' version of the SIP measurement), and their attitudes toward kindergarten. The team also assessed the children's competent and aggressive SIP patterns using the original SIP measurement for preschoolers, the Social Information Processing Interview, Preschool Version (SIPI-P; Ziv & Sorongon, 2011). The original SIPI-P evaluation was carried out in preparation for the validation of the new version of the SIP measurement created for this study, the Social Information Processing and Values Interview (described below). The interviews lasted 30 to 40 minutes, on average. In addition, the teachers were asked to complete several questionnaires, including assessments of the children's behavior in the classroom. The study protocol received approval from the third author's university IRB (approval # 464/16) and from the Ministry of Education Chief Scientist Office (approval # 9312). To obtain the materials and analysis codes used in this study, please contact the corresponding author.

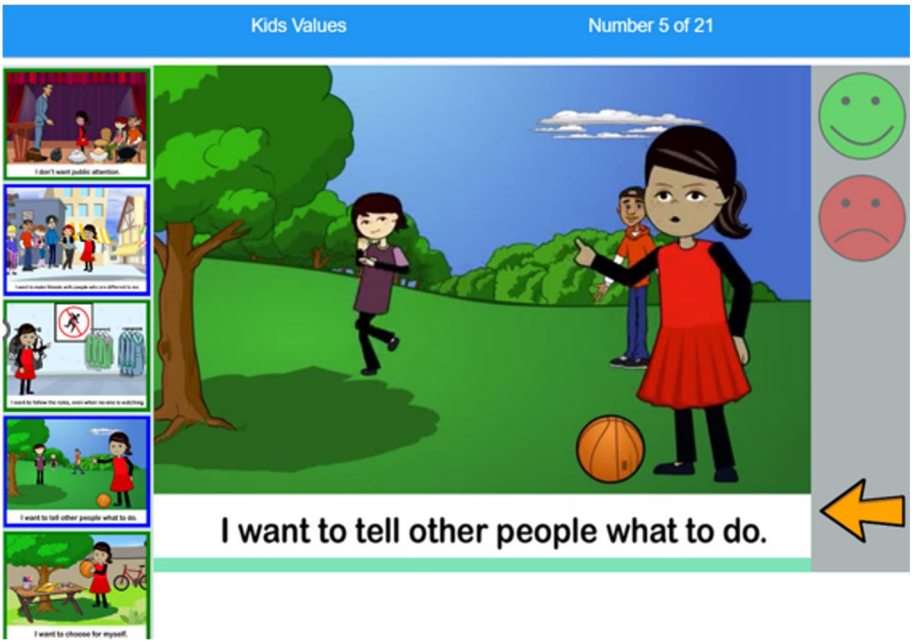
Measures

Values preferences

We used the Animated Values Instrument (AVI; Lee et al., 2017) to examine kindergarten children's values preferences. The AVI was designed to be suitable for use with young children. It employs a multi-sensory approach, integrating verbal, visual, and auditory information for each value, thereby enhancing young children's understanding of the essence of

each value. The AVI is structured as a web survey with 21 short values-expressive animations, each representing one of the four higher-order categories: self-transcendence, self-enhancement, conservation, and openness to change (Schwartz, 1994). For example, "I want to help people who have less than me" is an item that represents self-transcendence values, specifically universalism. The "I want to be the best" item represents self-enhancement values, specifically achievement. The survey applies the best-worse scaling method in a multiple-choice situation (see Louviere et al., 2013). In a one-on-one session, the researchers presented children with a total of 21 subsets, each showing five values-expressive animations. They asked the children which animation was the most (and the least) like them (see Fig. 3).

Children's value importance scores were calculated for each of the 21 values items by subtracting the number of times a values item was chosen as "least like me" from the number of times; it was chosen as "most like me." These scores were standardized by dividing them by five, i.e., the total number of times each animation appeared. This resulted in scores ranging from −1 to +1, where zero represented the midpoint of the scale. As we aimed to have only positive scores, we changed the scale from 1 to 11. The higher the score, the greater the importance of the value. To obtain the final score used in the study's model, the self-transcendence versus self-enhancement values score, we created a self-transcendence values category by averaging all items representing the universalism and benevolence values (creating a mean score of all the items) and the self-enhancement values category by averaging all items representing the power and achievement values. Then, we subtracted the self-enhancement values score from the self-transcendence values score, as was done in previous studies focusing on one of the two values dimensions (e.g., Abramson et al., 2018, Sagiv et al., 2011).



Note. The main screen shows the power value animation: 'I want to tell other people what to do.'

Fig. 3 Screenshot of subset number 5 of 21 from the Animated Values Instrument

The survey was developed in English and was originally used with English-speaking children (e.g., Benish-Weisman et al., 2019). We adapted it to Hebrew and Israeli culture. As part of the adaptation procedure, we translated it from English to Hebrew and back to English. Furthermore, as we wanted to ensure that the meaning of the animations and audio was clear to Israeli kindergarten children, we initiated a focus group comprised of six kindergarten children. We received approval for the final translation from Professor Shalom Schwartz, the developer of the values theory (personal communication, July 2018). As a final step, the Hebrew audio was recorded and sent to a programmer who incorporated the Hebrew audio and script and edited the tradition-values animation by replacing the picture of a church with a synagogue. The entire process was carried out in collaboration with the AVI developers.

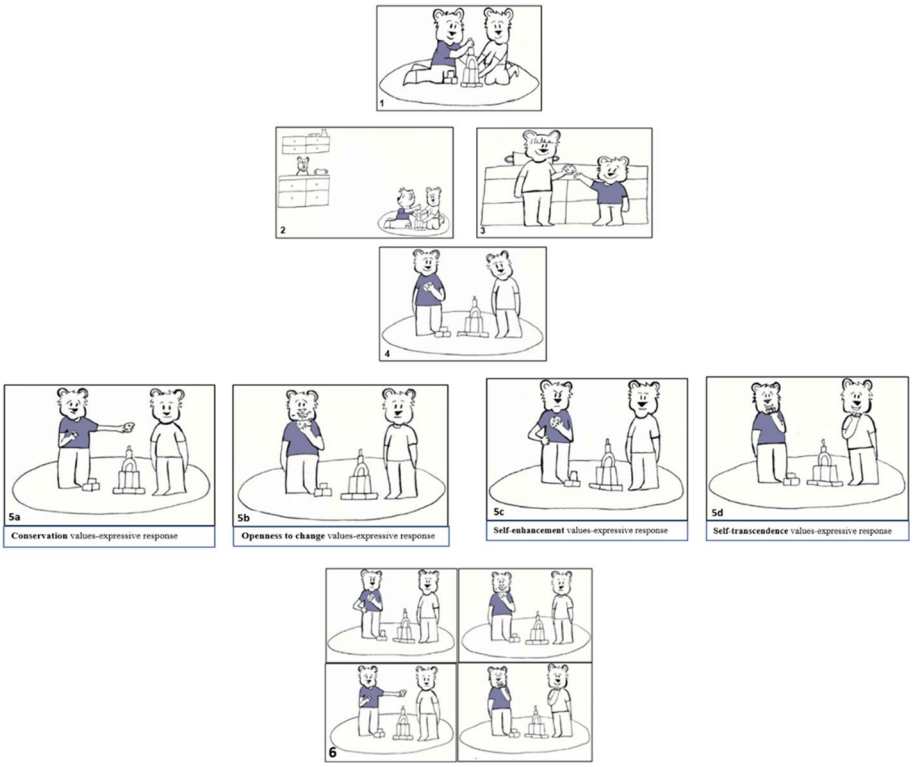
The reliability of the AVI is determined by measuring the consistency of the children's choices (see Collins et al., 2017). When a value is chosen four or five times (over the four other values-items in a particular subset), it is considered highly consistent because each value appears five times during the interview: the child has consistently chosen it over all the other values-items in each of the five times it appeared. Choosing a value three times out of five is still considered to be consistent. If no values-item is selected three times or more, the values-item choice is inconsistent. The same applies to the "least like me" values-item choice. In our sample, 62% of children made highly consistent values choices, and 32% made consistent values choices. Only 6% of children showed inconsistency. On the least important values choice, 57% of children were highly consistent, and 36% were consistent. Only 7% of children were inconsistent. Compared to previous AVI scores of 5-year-old children (see Collins et al., 2017), our sample's consistencies were very good. Applying a confirmatory multi-dimensional scaling (MDS) analysis to random data (Spence and Ogilvie, 1973), we obtained the values structure of our sample; it closely resembled Schwartz's initial model (see MDS results in Elizarov et al., 2023; Schwartz, 1994).

Values-oriented SIP

For this study, we modified the Social Information Processing Interview, Preschool Version (SIPI-P; see Ziv & Sorongon, 2011), to create the Social Information Processing and Values Interview (SIP-VI). The SIPI-P includes four stories illustrating challenging social scenarios where the intentions of the other peers are depicted as ambiguous or non-hostile. Two of these scenarios revolve around rejection (e.g., the protagonist seeks to join a game, but others remain unresponsive), while the other two focus on provocation (e.g., the protagonist is watching television, and another child takes the remote control, changing the channel). Similarly, the SIP-VI presents challenging social scenarios with ambiguous peer intentions. However, unlike the SIPI-P, which aims to provoke competent, aggressive, or inept information processing tendencies, the scenarios developed for the SIP-VI are tailored to elicit patterns of information processing observable within the framework of values research. The ambiguous scenarios in the SIP-VI subtly integrate content from the values research domain, such that the presented ambiguous provocations reflect potential conflicts in values in a nuanced manner, thereby facilitating subsequent coding and interpretation of children's diverse responses within the context of values. Additionally, in the section of the interview dedicated to the children's response evaluation stage of SIP, while the SIPI-P offers three alternative responses for each scenario categorized as competent, aggressive, or inept, the SIP-VI provides four alternative responses. Each of these four alternative responses, which the children later evaluate and select from, represents one

of the four higher-order value categories (refer to Fig. 4 and Table 1 for an illustration). Thus, throughout the entire interview, considering both the content of the presented social scenarios and the subsequent alternative responses presented to the children, the children's responses allowed us to differentiate between four values-oriented SIP patterns, corresponding to the four higher-order values categories (see Schwartz, 1994). As previously mentioned, we focused on the self-transcendence versus self-enhancement values; therefore, we employed two values-oriented SIP patterns, the self-transcendence values-oriented SIP pattern, and the opposing self-enhancement values-oriented SIP pattern.

The SIP-VI is a 20-min semi-structured interview designed for young children. It does not rely on reading or writing abilities; instead, it includes two pictorial short stories describing social situations that resonate with the experiences of 5-year-old children. These stories are accompanied by pictures of bears representing characters from the original SIPI-P. While the children are listening to the stories, the interviewer stops the story-telling at fixed points and asks questions (open and closed) that address their values-oriented SIP patterns. There are similar versions for boys and girls. Both stories include an ambiguous hypothetical social scenario that does not provide an ending for the interactions between the protagonists and their classmates. By creating these indefinite imaginative scenarios and incorporating values-related content, we enabled the manifestation of differences in



Note. The girls' version looks similar to the boys' version, but the boy bears have been replaced by girl bears. Originally, each numbered picture appeared on a separate page. For the picture's accompanying text, see Table 1.

Fig. 4 "The Cookie from the Teacher" story: Illustrations

Table 1 Text and values-oriented RED-related questions accompanying Fig. 4 stimuli

Picture	Text
1	In this story, Danny was playing with another child from his class
2	POINT TO THE KINDERGARTEN TEACHER. The kindergarten teacher was in the kindergarten's kitchen[1] and asked Danny to come over to her.
3	POINT TO THE COOKIE. The teacher told Danny: "I noticed that you behaved well today and therefore I'm giving you a tasty cookie as a price for your good behavior."
4	POINT TO DANNY. After the kindergarten teacher gave Danny the cookie, he went back toward the other child with whom he played,
	POINT TO THE OTHER CHILD. and noticed that the other child was looking at him and at the cookie that he was holding in his hand.
	STOP FOR A FEW SECONDS BEFORE CONTINUING.
	Q1: Now pretend that you get from your kindergarten teacher a tasty cookie for your good behavior and that when you go back toward the other child with whom you played, the other child from your class is looking at you and at the cookie you got. What would you do? IF CHILD DOES NOT RESPOND, SAY: what would you do if it happened to you?
	Now, let me show you some different things that Danny could do: (Here, each of the four possible alternative responses which are presented to the children represents each of the four higher-order values categories)
5a	POINT TO DANNY. Danny can be worried that the other child from kindergarten will fight him if he doesn't give him the cookie. That's why Danny will give the other child a big portion of his tasty cookie. (represents *conservation* values-oriented alternative response)
	Q2: Do you agree or disagree with what Danny did?
	Q3: If you did that, do you think the other child would like you?
	Q4: Could you enact in such a way?
5b	Now, I will show you something else that Danny could do
	POINT TO DANNY. Danny can quickly eat the entire cookie because it's fun and delicious to eat cookies. (represents *openness-to-change* values-oriented alternative response)
	AGAIN, **Q2-Q4**
5c	Now, I will show you something else that Danny could do
	POINT TO DANNY. Danny can say: "This tasty cookie is all mine. I got it because I'm the child who behaves the best in class – more than everyone else.". Then Danny will keep the cookie for himself. (represents *self-enhancement* values-oriented alternative response)
	AGAIN, **Q2-Q4**
5d	Now, I will show you something else that Danny could do
	POINT TO DANNY. Danny can share the cookie with the other child with whom he played in class, to make him happy. (represents *self-transcendence* values-oriented alternative response)
	AGAIN, **Q2-Q4**
6	Now I will read you again what Danny is doing and saying in each picture and I want you to think about the one response that you would have most wanted to carry out.
	AFTER READING AGAIN THE 4 ALTERNATIVES, SAY: **Q5**: Please point to the one response that you would most like to do yourself.
	POINT TO THE CHOSEN RESPONSE AND SAY: **Q6:** You said that you would most like to (The chosen response). Why would you most want to behave like that?
	Q7: You said that doing (The chosen response) would be the thing you would least want to do. Why would you least want to behave like that?

Note. Uppercase letters indicate instructions for interviewers. Lowercase letters indicate the script read to the child; [1]In Israel, kindergartens are usually independent structures, and kitchens are part of the kindergarten environment

children's personal characteristics (Roccas & Sagiv, 2010). This process specifically reveals their implicit values-related motives that underlie their social information processing (Schattke et al., 2011). Simultaneously, the interview questions posed to the children explicitly inquire about their SIP patterns, ultimately revealing distinctions in their values-oriented response evaluation and decision-making (RED) patterns, the SIP model's steps as explored in prior studies (Arbel et al., 2021; Fontaine & Dodge, 2006; Schultz et al., 2010; Ziv, 2012; Ziv & Arbel, 2021) and in the current study to predict child outcomes.

We obtained two opposing scores: the first was the self-transcendence values-oriented RED; the second was the self-enhancement values-oriented RED. These scores included the children's responses to seven RED-related questions asked after each of the two social scenarios (see Fig. 4 and Table 1 for an example). For the self-transcendence values-oriented RED score, each of the seven questions was scored "0" for an answer that was not coded as self-transcendence values-oriented and "1" for an answer that was coded as self-transcendence values-oriented. The total aggregated self-transcendence values-oriented RED score ranged from 0 to 14, taking account of the children's answers in both social scenarios. The self-enhancement values-oriented RED score also ranged from 0 to 14. Then, as we did for the self-transcendence versus self-enhancement values scores, and to get a parsimonious model, we subtracted the self-enhancement values-oriented RED score from the self-transcendence values-oriented RED score, resulting in the self-transcendence versus self-enhancement values-oriented RED.

Finally, for the three RED-related open questions (see Table 1, Q1 and Q6–Q7), the first author and a trained assistant performed an inter-rater reliability process for 30% of the cases to make a decision about the quality of the response classifications (e.g., self-transcendence values-oriented or self-enhancement values-oriented classifications). The intraclass correlation coefficient (ICC), a statistical measure used to assess the consistency or agreement between raters, was calculated for each question. ICC values range from 0 to 1, where higher values indicate greater agreement between raters. For the first question (Q1), the ICC for the self-transcendence classification ranged from .92 to .94, indicating excellent agreement between raters, and for the self-enhancement classification, it ranged from .84 to .86, indicating very good agreement between raters. Similarly, for the outcome expectancy questions (Q6 and Q7), the ICC ranged from .94 to .96 for the self-transcendence classification and from .95 to .99 for the self-enhancement classification, both demonstrating excellent agreement between raters.

Attitudes toward kindergarten

Using the Feelings About School (FAS; Valeski & Stipek, 2001) scale, we assessed children's attitudes toward kindergarten. The FAS is administered to children and is a direct assessment composed of four subscales: attitudes toward school (e.g., "How fun are things at school?"), feelings about the relationship with the teacher (e.g., "How do you feel about your teacher?"), perceived competence in literacy (e.g., "How much do you know about reading?"), perceived competence in math (e.g., "Are you good at math?"). As the measure is applied to young children who are not yet able to read, the 5-point Likert-type scale is illustrated to facilitate responses. It includes five circles with increasing size; the first circle is the smallest, indicating the lowest score, and the fifth circle is the largest, indicating the highest score. Each item is read aloud, and children are asked to point to the circle that reflects their response. Higher scores indicate more positive attitudes and perceptions. Since we were interested in the children's socially-oriented attitudes toward kindergarten, we used their scores for attitudes toward

the class and toward the teacher, as teachers are a crucial part of the class as a social environment. Previous studies reported Cronbach's alphas ranging from .57 to .85 for the internal consistency of these two subscales (class and teacher attitudes) (e.g., Daniels, 2014; Hong et al., 2022; Longobardi et al., 2021). In this study, the Cronbach's alpha for the two subscales ranged from .62 to .81, and when these were combined into a general score for socially-oriented attitudes toward kindergarten, the score showed good internal consistency ($\alpha = .76$).

Prosocial and antisocial behaviors

Children's prosocial and antisocial behaviors in class were measured using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), teacher report version. The SDQ contains five subscales. As in previous studies using this measure (e.g., Eivers et al., 2010; Eivers et al., 2012; Larsson et al., 2008), we only used two: the prosocial behavior scale (e.g., "Shares readily with other children"; "Often volunteers to help others") and the conduct problem scale (e.g., "Often fights with other children or bullies them"; "Often lies or cheats"; i.e., the antisocial behavior score). Each scale includes five items which are rated by the children's teachers on a 3-point scale: 0 "not true," 1 "somewhat true," and 2 "certainly true." The final scores were calculated by averaging the five items under the prosocial subscale and the four items under the conduct problem subscale (the fifth item in this subscale, "Steals from home, school or elsewhere", was omitted due to a lack of variance in answers). These scales were previously found to have satisfactory internal consistency ($\alpha = .70$–$.85$ for prosocial behavior; $\alpha = .63$–$.71$ for problem behavior; see Eivers et al., 2010; Houltberg et al., 2016; Larsson et al., 2008; Longobardi et al., 2021). The internal consistencies in our study were acceptable: $\alpha = .78$ for prosocial behavior; $\alpha = .72$ for conduct problems.

Analytic strategy

To ensure the validity and reliability of the SIP-VI, we first compared the separate values-oriented RED scores with the children's relevant and separate values scores to assess whether the SIP-VI successfully incorporated values-oriented content while examining children's SIP patterns. Then, we examined the correlations between the self-transcendence values-oriented RED and the self-enhancement values-oriented RED. As these constructs relate to opposing values orientations (the self-transcendence versus self-enhancement dimension), we anticipated negative correlations between them. We also examined the correlations between the self-transcendence and self-enhancement values-oriented RED patterns generated from the SIP-VI and between the competent and aggressive RED patterns generated from the SIPI-P (see the elaborated SIPI-P measurement description in Ziv & Sorongon, 2011). By so doing, we aimed to ensure that the new values-oriented RED patterns were indeed differentiated from the RED patterns generated from the original SIPI-P measurement (Ziv & Sorongon, 2011). Finally, we evaluated the internal consistency of each values-oriented RED scale to determine the reliability of the scales.

To test the hypothesized model, we utilized a pathway analysis that included indirect paths between children's values and their social behaviors in class via their values-oriented RED patterns and their attitudes toward kindergarten. A path analysis was performed using the R package lavaan (Rosseel, 2012), and the maximum likelihood estimation method was applied to handle missing data. The model was analyzed with and without the control variables (child gender, SES, a variable consisting of mother's education level and household income, and the children's openness-to-change versus conservation values dimension).

Analyses with and without covariates provide non-biased information on how the presence of a covariate influences a result (Simmons et al., 2011). We also calculated the 95% confidence intervals (CIs) to determine if indirect effects were significant. To verify the non-independence of teachers' ratings regarding children's prosocial and antisocial behaviors, we employed the Intraclass Correlation Coefficient (ICC). This statistical measure assesses the degree of agreement among ratings provided by different reporters. In the case of non-independence assessment, a low ICC value indicates there is a small between-group variance in the dependent variable, implying that concerns regarding non-independence are relatively diminished (Gelman & Hill, 2006). In our analysis, the ICC for both variables, as reported by the teachers, approached zero, indicating concerns about non-independence were minimal, and multilevel modeling (MLM) was not required.

Results

Preliminary analysis

To address the validity of the SIP-VI, we initially analyzed the correlations between the values-oriented RED scores and the children's corresponding values scores. As expected, children's self-transcendence values positively correlated with their self-transcendence values-oriented RED ($r = .22$, $p < .05$) and negatively correlated with their self-enhancement values-oriented RED ($r = -.17$, $p = .05$). Similarly, the children's self-enhancement values had a negative correlation with their self-transcendence values-oriented RED scores ($r = -.19$, $p < .05$) and a positive but not significant correlation with their self-enhancement values-oriented RED scores ($r = .14$, $p = .12$). We also examined the correlation between the two types of values-oriented RED scores, namely self-transcendence values-oriented RED and self-enhancement values-oriented RED, and found they were negatively correlated, as anticipated ($r = -.45$, $p < .001$).

Our next step was to examine the correlations between the newly introduced values-based RED patterns (self-transcendence and self-enhancement) and the RED patterns generated by Ziv & Sorongon (2011) original SIPI-P measurement (competent and aggressive behavior). Our goal was to establish that these two types of RED patterns, the ones from the original measurement and those from the new version, were distinct. We assumed the only significant correlation we would observe would be between the children's self-enhancement values-oriented RED and their aggressive RED patterns, as the self-enhancement values category encompasses power values often associated with aggressiveness (Benish-Weisman, 2019). Although the aggressive RED patterns do not capture the entirety of self-enhancement values, they have some similarities. We found no significant correlations between the children's self-transcendence values-oriented RED and their competent ($r = .10$, $p = .27$) or aggressive ($r = -.00$, $p = .97$) RED patterns. There was no significant correlation between the children's self-enhancement values-oriented RED and their competent RED patterns ($r = -.08$, $p = .38$), but as we had assumed, it was positively and significantly correlated with their aggressive RED patterns ($r = .28$, $p < .01$).

Finally, we evaluated the internal consistency of the values-oriented RED scores. The internal consistencies of both the self-transcendence values-oriented RED and the self-enhancement values-oriented RED were satisfactory, with values of $\alpha = .73$ and $\alpha = .74$, respectively.

The descriptive statistics and all study variables are presented in Table 2, along with their means, standard deviations, and correlations. No significant correlations were found

Table 2 Descriptive statistics and correlations between study variables

	1	2	3	4	5	6	7
1. ST vs. SE values							
2. ST vs. SE values-oriented RED	.23*						
3. Attitudes toward kindergarten	.20*	.32***					
4. Prosocial behaviors	.08	−.03	.24**				
5. Antisocial behaviors	−.02	−.02	−.24**	−.49***			
6. SES	−.05	.08	−.09	−.01	−.13		
7. Gender	.26**	.15	.22*	.24**	−.12	−.15	
Mean	.29	3.76	25.09	1.58	.71	4.31	-
SD	2.31	4.72	5.16	.42	.36	.93	-

Note. *$p < .05$, **$p < .01$, ***$p < .001$. ST vs. SE values, self-transcendence versus self-enhancement values; ST vs. SE values-oriented RED, self-transcendence versus self-enhancement values-oriented response evaluation and decision-making processes; gender (1 = boys, 2 = girls)

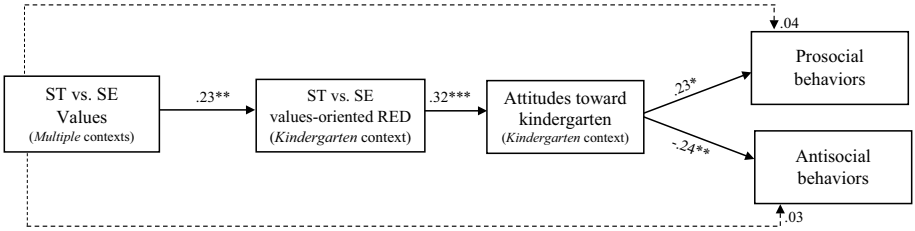
between the study variables and SES. Gender was positively related to children's self-transcendence versus self-enhancement values, their attitudes toward kindergarten, and their prosocial behaviors ($r = .26$, $p < .01$; $r = .22$, $p < .05$; $r = .24$, $p < .01$, respectively). No significant associations were found between gender and children's self-transcendence versus self-enhancement values-oriented RED and their antisocial behaviors.

Path analysis

Using path analysis, we assessed the overall fit of the conceptual model linking kindergarten children's values to their social behaviors in class via their values-oriented SIP patterns (RED) and their attitudes toward class (see Fig. 5). The study's overall model fitted the data: *NFI* = .94, *CFI* = .98, *RMSEA* = .06, SRMR = .04, which is considered a good fit (Kline, 2011, 2016).

The results demonstrated that children's self-transcendence (over self-enhancement) values had a significant indirect effect on their social behavior in class through their values-oriented RED and their attitudes toward kindergarten. The model incorporates the significant paths between (1) children's self-transcendence versus self-enhancement values and children's self-transcendence versus self-enhancement values-oriented RED ($\beta = .23$, $p = < .01$), (2) children's self-transcendence versus self-enhancement values-oriented RED and their attitudes toward class ($\beta = .32$, $p = < .001$), and (3) children's attitudes toward class and their prosocial behaviors ($\beta = .23$, $p = < .05$; 95% CI = .000, .008) and antisocial behaviors ($\beta = -.24$, $p = < .01$; 95% CI = −.007, .000; see Fig. 5).

To ensure the robustness of the analysis, we examined a model which included the last possible path, namely, the path between self-transcendence versus self-enhancement values and children's attitudes toward class ($\beta = .14$, $p = .12$), as well as the paths between self-transcendence versus self-enhancement values-oriented RED and children's prosocial and antisocial behaviors ($\beta = -.13$ $p = .17$; $\beta = .06$, $p = .56$, respectively). These additional paths were not significant and did not change the patterns of the results. We then tested two possible alternative models. In the first, we examined the possibility that children's self-transcendence versus self-enhancement



Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$. Nonsignificant paths are represented as dashed lines. The covariances between the outcomes are not presented for the sake of greater clarity of visual presentation, even though they were included in the analysis. ST vs. SE values = preferring self-transcendence values over self-enhancement values; ST vs. SE values-oriented RED = more self-transcendence (over self-enhancement) values-oriented response evaluation and decision-making (represent SIP).

Fig. 5 Pathways analysis model linking kindergarteners' values and social behaviors in class via kindergarteners' values-oriented SIP patterns (RED) and their attitudes toward the kindergarten class

values positively relate to their attitudes toward class, which then positively relate to their self-transcendence versus self-enhancement values-oriented RED, which in turn relates to their more prosocial and less antisocial behaviors. The model did not fit the data (p <.01), and the goodness-of-fit indicators were insufficient, NFI = .78, CFI = .80, $RMSEA$ = 0.18, and $SRMR$ = .08. In the second alternative model, we examined the possibility that children's self-transcendence versus self-enhancement values-oriented RED positively relates to their attitudes toward class, which then positively relate to their self-transcendence versus self-enhancement values, which in turn relate to their more prosocial and less antisocial behaviors. As before, the alternative model did not fit the data ($p < .01$), and the goodness-of-fit indicators were insufficient, NFI = .78, CFI = .80, $RMSEA$ = 0.18, and $SRMR$ = .08.

Finally, we tested alternative models that included children's gender, SES, and openness-to-change versus conservation values to examine whether these demographic factors and the second values dimension affected our results. When controlling for gender, we found significant paths between gender and children's attitudes toward class (β = .18, p = < .05) and children's prosocial behaviors (β = .2, p = < .05). No significant paths were found between SES and the study's variables. When controlling for openness-to-change versus conservation values, we found a significant path between this values dimension and children's attitudes toward class (β = −.18, p = < .05). Overall, the control variables did not alter the pattern of results; therefore, they were dropped for parsimony. The significance of the pathways in all the alternative models mentioned above is explained in Supplementary Tables S1 and S2.

Discussion

Values-behavior relationships are evident in different social contexts and across age groups and include a wide range of behaviors (Arieli et al., 2020; Benish-Weisman et al., 2022; Schwartz et al., 2010), thus emphasizing the essential role of values in human behavior. Despite advances in understanding the interplay between values and social behavior, the underlying mechanisms driving these relationships are not fully understood (Bardi & Schwartz, 2003; Sagiv & Roccas, 2021). Moreover, knowledge about the development of values in the critical preschool years is especially lacking. Accordingly, in this study, we

explored a socio-cognitive mechanism linking values and social behavior among 5-year-old kindergarten children. Our main purpose was to examine the indirect links between kindergarten children's preferred values and their prosocial and antisocial behavioral tendencies in kindergarten through their values-oriented social response evaluation and decision-making (RED) patterns (Fontaine & Dodge, 2006) and their attitudes toward their kindergarten.

The hypothesized model of significant indirect paths between kindergarten children's self-transcendence (over self-enhancement) values and their prosocial and antisocial behaviors in kindergarten was supported by the results. Findings indicated that children who favored self-transcendence values over self-enhancement values were more prone to display self-transcendence values-oriented RED (over self-enhancement values-oriented RED). That is, when confronting different social scenarios, they were likely to more positively evaluate alternative responses prioritizing the well-being and interests of others and to decide on a response driven by the needs and interests of others. These findings contribute to the growing body of scientific evidence that reinforces the fundamental concept of Crick and Dodge's (1994) SIP model which states that an individual's database, represented in the present study by values as social schemas (Milner, 1993; Schwartz, 1994), helps shape how the individual processes social information in social interactions (e.g., Calvete & Orue, 2010, 2012; Salzer Burks et al., 1999; Zelli et al., 1999). In other words, when children encounter a social situation and must evaluate various responses and choose one, their preferred values are likely to serve as guiding motivators that help them determine more rapidly and efficiently between alternatives and outcomes that are subjectively perceived as more or less desirable also based on these values (Benish-Weisman, 2015; Rokeach, 1973). Evidence of a link between children's values and their SIP patterns may prompt educators to pay closer attention to children's guiding motivations and to the ways these motivations are manifested in their everyday interactions with peers and teachers. Educators can enhance self-transcendence values among children; this, in turn, may foster positive social behaviors and a supportive social climate in the kindergarten setting.

In our sample, children's inclination toward self-transcendence values-oriented RED was linked to their more positive attitudes toward kindergarten. Thus, the results support the theoretical notion that SIP is associated with attitudes toward a social context and is an indicator of social adjustment (Crick & Dodge, 1994; Salancik and Pfeffer, 1978). Little empirical research has actually tested this notion, and existing studies focus on adults' social settings, such as the workplace (see Zalesny & Ford, 1990). Our study brings attention to young children and the kindergarten environment. It also provides important initial empirical evidence indicating that the ways children process social information during their daily experiences in kindergarten are linked to their attitudes, namely their overall feelings and thoughts, toward the class. Furthermore, considering the significant path between children's SIP patterns and their attitudes, along with the earlier findings of a significant path between children's values and their SIP patterns, our results endorse the SIP model's hypothesis (Crick & Dodge, 1994) of a bidirectional influence between the database and the SIP steps. Essentially, the significant model we observed in the current study may imply that while a broad mental structure, such as values, impacts individuals' SIP steps, another, more context-specific mental structure, such as attitudes toward a specific social setting, is simultaneously influenced by the individuals' SIP patterns.

When viewed from the perspective of values research, another intriguing aspect of our results pertains to the indirect associations between values and attitudes. In the tested model, when we included children's SIP patterns, the direct associations between values and attitudes were non-significant (see Supplementary Table S1). Given previous studies that provide strong evidence for the ways individuals' values influence their related

attitudes (e.g., Grigoryan et al., 2018; Grigoryan & Schwartz, 2021; Kulin & Svallfors, 2013), our findings offer a new perspective on a potential mechanism linking values and attitudes, specifically individuals' SIP patterns.

The final hypothesized paths were also supported. Children who held more positive attitudes toward their kindergarten were likely to demonstrate more prosocial behaviors and fewer antisocial behaviors in kindergarten. The experience children have in kindergarten can play a crucial role in their motivation to be engaged and to participate in social interactions and activities there (Mashburn et al., 2008). When their overall experience is more positive, as reflected by their positive attitudes toward kindergarten, they are likely to engage more with peers and teachers, building closer and more positive relationships (Furrer & Skinner, 2003). A positive engagement with their social surroundings in kindergarten is likely to result in more prosocial behaviors, as children feel more accepted and loved. Simultaneously, their antisocial behaviors are likely to be reduced, as children who feel more related to and supported by their social surroundings tend to act in ways that benefit the others who are part of those surroundings rather than in ways that cause harm (Henricsson & Rydell, 2006; Wentzel & Caldwell, 1997). Moreover, previous studies investigating attitudes toward the educational context and their correlation with social behaviors in class have centered on school-aged children (e.g., Luengo Kanacri et al., 2017; Wang & Dishion, 2012; Way et al., 2007). The current study's findings add to this work and contribute to a more developmental perspective by illustrating an early existence of associations between attitudes and behavior in early education settings.

Educational implications

This study's results point to possible practical applications in the school environment. More specifically, the findings suggest the relevance of promoting the preference for self-transcendence values (over self-enhancement values) in early childhood as a means to foster more prosocial and fewer antisocial behaviors among young children (see also Elizarov et al., 2023). This approach also holds promise for improving the overall social climate within classrooms (Allodi, 2010; Barth et al., 2004). Prior research similarly highlights that striving for self-transcendence values-oriented goals, including prosocial and social responsibility goals, correlates with increased prosocial behavior in the classroom (e.g., Collie 2022; Wentzel et al., 2018). To facilitate this objective, teachers could incorporate various activities and practices that emphasize the benefits and positive outcomes, both for self and others, of pursuing goals aligned with self-transcendence values. These may include exhibiting increased awareness of and consideration for others' needs, fostering a more helpful and supportive attitude, and dedicating time and effort to benefit nature and animals. Activities aiming to promote self-transcendence values among young children should be designed in a playful and appealing manner (Rantala & Määttä, 2012) and include opportunities for reflection and discussion to help children understand the impact of their actions (Denton, 2011).

In addition, to maximize the effectiveness of attempts to improve the class social environment, teachers should focus not only on motivating children to be more helpful and considerate of the needs of others in their classroom, but also on teaching them how to apply these self-transcendence values-oriented motivations when they are faced

with social challenges in the kindergarten setting. This can be done by assisting children to become more aware of how they can express their self-transcendence aspirations as they process social information. For example, as part of daily conversational activities, teachers can present common social scenarios or ask children to share challenging social occurrences they have experienced and engage in discussions about these situations. These discussions can involve exploring the meaning behind what happened, and teachers and children can suggest alternative behavioral responses (Wilson & Lipsey, 2006) while considering the consequences of each response and whether it benefits oneself and the other peers. Then, they can decide on the responses that are more suitable for the situation while taking into account the feelings and interests of the others in the situation. This way of fostering empathic consideration of others' perspectives and interests was found to positively influence children's prosocial behaviors (Eisenberg et al., 2006). It is also crucial to encourage children to independently propose interpretations for situations that consider others' perspectives and generate alternative responses oriented toward others. By suggesting these alternatives themselves, children may exhibit a stronger commitment to applying these SIP patterns in real, ongoing situations (see Spivak, 2016). Fostering children's self-transcendence values and their self-transcendence values-oriented SIP patterns can eventually lead to positive attitudes toward the class as a social setting and then to more prosocial and less antisocial behaviors.

Theoretical and methodological contribution

This study contributes to a better comprehension of the factors, dynamics, and mechanisms that intervene in or underlie values-behavior relationships, which are evident from early childhood and continue throughout the life course (Sagiv & Roccas, 2021). It is the first study to address this issue among very young children. The findings contribute to the field of SIP by demonstrating for the first time the associations between young children's values, which serve as social schemas in their mental database, and their SIP patterns. This includes unique evidence of how children's preferred values can be expressed in their response generation, evaluation, and decision-making processes, resulting in values-driven SIP patterns.

The investigation was enabled by a new version of the SIP-P (Ziv & Sorongon, 2011) incorporating elements from Schwartz's values model and Crick and Doge's SIP model into a single measurement. This measure allowed us to address an important gap in the SIP research and provide preliminary insights into how social mental structures, like values, are expressed in and linked to children's social information processing (see Arsenio & Lemerise, 2004).

Limitations and future directions

While the study provides novel insights, certain limitations should be acknowledged. First, it was conducted with a relatively small sample of 5-year-old children who mostly came from Israeli middle-class families. More extensive research is necessary to replicate the results and apply them to larger and more diverse participant samples. It is essential to examine these dynamics across age groups and cultural contexts, especially as distinct

patterns have been observed in the relationship between values and behaviors across age (e.g., Benish-Weisman et al., 2019).

Second, the study presented a socio-cognitive mechanism to explain the values-behavior relationships in a specific social context, an Israeli kindergarten. We investigated how values, as broad motivational factors, influence socio-cognitive and behavioral outcomes in the context of kindergarten, which is an important social context for young children. We examined variables specific to this context, including the children's attitudes toward kindergarten and their prosocial and antisocial behaviors during kindergarten hours. It is important for future research to explore how our proposed mechanism operates in other significant contexts, such as the home environment or other social groups.

Third, our hypotheses targeted a specific sequence of events in which children's values are connected to how they process social information; this is related to their attitudes toward kindergarten, which, in turn, affect their social behavior in kindergarten. Despite our theoretical basis for these proposed pathways and the supporting results, the study provides only correlational evidence and goodness of fit indicators of the overall model, and causal conclusions cannot be drawn. Experimental and longitudinal designs should be employed to replicate the suggested sequence or to offer alternative directionalities.

Conclusion

This study's results emphasize the importance of young children's social cognition, i.e., their values, SIP patterns, and attitudes, in shaping their social behavior in a kindergarten setting. As such, they provide new insights into the interplay between various social mental structures and mechanisms in the developing social cognition of kindergarten children. These different aspects in social cognition interact and influence children's social behavioral tendencies, key factors for positive social development. The findings may lead to the development of targeted educational interventions and practices to foster healthy social development outcomes for children as they continue to grow and interact with others in various social settings.

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Data availability Materials and analysis codes for this study are available by emailing the corresponding author.

Declarations

Ethics approval Complete study protocol approval was obtained from the first and second author's University's IRB (approval # 464/16) and from the Ministry of Education Chief Scientist Office in Israel (approval # 9312).

Consent for publication Not applicable.

Conflict of interest The authors declare no competing interests.

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