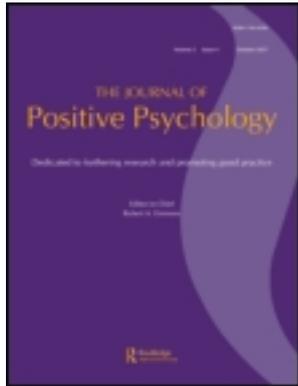


This article was downloaded by: [Interdisciplinary Center IDC]

On: 02 February 2014, At: 21:41

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



The Journal of Positive Psychology: Dedicated to furthering research and promoting good practice

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rpos20>

The pillars of strength for first-grade adjustment - Parental and children's character strengths and the transition to elementary school

Anat Shoshani ^a & Ilanit Aviv ^b

^a School of Psychology , Interdisciplinary Center (IDC) Herzliya, P.O. Box 167, Herzliya 46150 , Israel

^b School of Education , Beit Berl Academic College , Herzliya , Israel

Published online: 28 May 2012.

To cite this article: Anat Shoshani & Ilanit Aviv (2012) The pillars of strength for first-grade adjustment - Parental and children's character strengths and the transition to elementary school, *The Journal of Positive Psychology: Dedicated to furthering research and promoting good practice*, 7:4, 315-326, DOI: [10.1080/17439760.2012.691981](https://doi.org/10.1080/17439760.2012.691981)

To link to this article: <http://dx.doi.org/10.1080/17439760.2012.691981>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

The pillars of strength for first-grade adjustment – Parental and children's character strengths and the transition to elementary school

Anat Shoshani^{a*} and Ilanit Aviv^b

^a*School of Psychology, Interdisciplinary Center (IDC) Herzliya, P.O. Box 167, Herzliya 46150, Israel;*

^b*School of Education, Beit Berl Academic College, Herzliya, Israel*

(Received 12 August 2011; final version received 30 April 2012)

The present study aimed to explore the relations between parental and children's character strengths and children's school adjustment during the critical period of school entry. Participants were 479 parents and 16 first-grade teachers of 479 first-grade schoolchildren from five public elementary schools in Israel. Children's and parents' character strengths were measured by parental questionnaires, based on the Values in Action inventories of strengths. In addition, teachers completed questionnaires about their students' cognitive, social, emotional, and behavioral school adjustment. Findings showed that parents' intellectual, interpersonal, and temperance strengths were positively related to their children's school adjustment. In addition, children's intellectual, interpersonal, group-interaction, temperance, and transcendence strengths were positively related to broad aspects of first-grade adjustment. The present study provides an initial exploration of the contribution of personal and parental strengths to young children's optimal adjustment to elementary school.

Keywords: first-grade; school-adjustment; character; strengths; parents; children

Introduction

The transition to formal schooling is a complex and multifarious process that requires simultaneous adjustment processes in emotional, social, behavioral, and cognitive aspects. It involves drastic changes in day structure, behavioral norms, rules, expectations, and demands, in comparison to kindergarten classrooms (Susan, 2006). Disturbingly, empirical evidence shows that 20–30% of children exhibit problems during the first year of school such as difficulty following directions, a lack of academic skills, social skills problems, disruptive behavior, attention/hyperactivity disorders, anxiety symptoms, and depressive disorders (Carter et al., 2010; Vecchiotti, 2003).

Extensive research has been conducted over the years to address the diverse needs of children entering elementary school. Most of the studies hold the common assumption that school readiness is a key determinant of successful transition to school (Pianta, Belsky, Houts, & Morrison, 2007). The accumulated data regarding school readiness have been integrated to five central domains of readiness including: physical well-being and motor development, social and emotional development, approaches to learning, language

development, and cognition and general knowledge (NAEYC, 1996).

However, conceptualization of school readiness that focuses on children's competencies alone does not consider the full range of environments and processes that explain how children acquire these competencies. In particular, school readiness may be more broadly understood as an outcome of the ecologies within which children are embedded that support their educational progress, such as settings (home, school, and child care), and institutions (neighborhoods, communities, and governments) (Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Mashburn & Pianta, 2006; Pianta & Walsh, 1996). Among these varied ecologies, it appears that early family context, and in particular parenting quality, maternal education, sensitive parenting, family income and stimulation of language skills, tend to make a stronger contribution to children's school adjustment than other early childhood contexts (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002).

However, in the research field of school adjustment, there is still disproportionate emphasis on the academic competencies of school readiness, such as

*Corresponding author. Email: ashoshani@idc.ac.il

language development, cognition (e.g. math and science), and general knowledge, while the other developmental domains, such as social and emotional aspects receive less attention. This tendency may be related to the implementation of standards-based accountability in education reform, which led to prominence of cognitive aspects of readiness (NCLB, 2001). The existing literature provides extensive information about the contribution of parental characteristics and children's skills to cognitive performance at school, but limited knowledge about basic personality qualities that may enhance first-grade adaptability, not only just academically, but also emotionally, socially, and behaviorally.

The present study derives from the growing field of strengths-based character and virtues, and represents a pioneer attempt to explore the contribution of parents' and children's character strengths to first-grade adjustment. School adjustment refers to a child's ability to negotiate successfully the academic, social, emotional, and behavioral demands of the school setting (Birch & Ladd, 1996).

The study was conducted in Israel, where children begin primary school at the conclusion of kindergarten at six years of age, and kindergarten is considered part of the preschool system. While kindergarten in Israel is viewed as a separate part of the elementary program, it differs from kindergarten classes in the United States and Canada, as well as in parts of Australia, where kindergarten is fully integrated into the school and represents the first year of education, or primary school (K-12 educational system). Therefore, the current discussion about first-grade adjustment refers to adjustment to the first year of formal education.

School adjustment from ecological perspective

Bronfenbrenner's work on the social ecology of human development (Bronfenbrenner, 1979) proposes that the social domains for human development can be represented by a set of nested structures, organized into five systems – microsystem, mesosystem, exosystem, macrosystem, and chronosystem. At the microsystem level, the family was found as the most proximal and fundamental system influencing human development (Whitbeck, 1999). As such, family structure, or patterns and quality of interactions within families, is expected to be a particularly powerful influence on child development.

A family environment plays a prominent role in nurturing children's skills prior to school entry, and has significant influence on children's adaptation to various aspects of the school environment. Parents have been described as children's first teachers. Specifically, parent involvement at home and school, and the levels of education that parents bring to these

interactions can enhance academic outcomes. Through home activities (e.g. book reading, teaching about letters and numbers), parents can introduce children to fundamental literacy and mathematics skills (Fantuzzo, McWayne, Perry, & Childs, 2004).

Aspects of parent–child relationship, in particular maternal sensitivity during parent–child play interactions, are especially robust predictors of children's academic competence in kindergarten and first grade, even after accounting for factors such as maternal education (Pianta & Harbers, 1996). In addition, a number of familial risk factors for school maladjustment have been identified such as low socioeconomic status, single-parent family status, ethnic minority status, family history of psychological problems, substance use, legal problems, marital discord, and lack of social support (Greenberg, Coie, Lengua, & Pinderhughes, 1999).

The first aim of the present study is to add a new research direction to this line of inquiry by examining the unique predictive power of parents' character strengths for several indices of school adjustment. Strengths of character have been defined as a pre-existing capacity for a particular way of behaving, thinking, or feeling that is authentic and energizing to the user, and enables optimal functioning, development, and performance (Linley, 2007). Prior research suggests that character strengths are strongly related to optimal functioning, life fulfillments, and personal well-being (Park & Peterson, 2005). In addition, studies have demonstrated that parental personality traits are an important predictor of parent–child relationships and daily living outcomes (Huver, Otten, de Vries, & Engels, 2010; Kochanska, Clark, & Goldman, 1997). Another study has found strong relations between parental strengths of hope and optimism and adaptive child (e.g. self-esteem) and familial functioning (e.g. parent–child relationships, social adjustment) (Kashdan et al., 2000). Considering these evidences, we speculate about possible associations between specific parental strengths and children's functioning at school.

Beyond the role of familial factors in school adjustment, numerous studies have focused on exploring factors within the child that associate with school functioning. Several skills were found as key factors in first-grade adjustment such as cognitive and linguistic maturity (Birch & Ladd, 1996), general knowledge and early literacy (Furnes & Samuelsson, 2009), early skills in math, reading, and regulation of attention (Duncan, Dowsett, Claessens, Magnuson, & Huston, 2007), and physical skills, especially fine motor skills (Missiuna, Moll, S. King, G. King, & Law, 2007). In addition, children's prior behavior and the kindergarten peer context were robust factors found to predict post-transition social adjustment (Ladd & Price, 1987).

Although this body of research has illuminated important data, it lacks in-depth knowledge on the role

of personality traits in general, and character strengths in particular, that may underlie diverse patterns of first-grade adjustment. For this reason, the second aim of this study is to explore the linkages between children's character strengths (reported by parents) and social, emotional, cognitive, and behavioral engagement to the first grade.

The concept of school engagement refers to a student's behavioral and psychological involvement in learning at school, and assumes that children must do more than simply attend school to profit from schooling (Marks, 2000). Rather, they must engage the classroom environment in ways that promote learning, and build competence not only academically but also socially, behaviorally, and emotionally (Ladd & Dinella, 2009).

Three forms of engagement have been identified as potential determinants of learning and achievement: behavioral, emotional, and cognitive engagement (Fredricks, Blumenfeld, & Paris, 2004). Behavioral engagement refers to participation and involvement in academic and social or extracurricular activities and positive conduct, such as following the rules and adhering to classroom norms, as well as the absence of disruptive behaviors (Finn, Pannozzo, & Voelkl, 1995). Cognitive engagement highlights a psychological investment in learning that refers to the level of processing or intellectual effort that students devote to mastering learning tasks. Emotional engagement has been defined as student's sentiments toward school, and has been operationalized as children's feelings about teachers, schoolwork, their affective reactions to the classroom and identification with school (Ladd & Dinella, 2009).

Human character strengths and virtues

The rise of positive psychology and strengths-based approaches during the last decade yielded growing interest in studying character strengths, virtues, happiness, optimal functioning, and fulfillment (Peterson & Seligman, 2004; Seligman & Csikszentmihalyi, 2000). Growing evidence shows that good character is associated with desirable outcomes such as ability to delay gratification, prosocial behavior, and competence (Scales, Benson, Leffert, & Blyth, 2000), individual's happiness and well-being (Park & Peterson, 2005), and coping with stress and trauma (Park & Peterson, 2006a). However, most studies focused on adult population, and there has until been a substantial neglect of study of how character strengths are related to optimal functioning and well-being among children.

There is a widespread consensus among parents concerning the importance to promote children's character strengths and values. Parents intuitively emphasize certain character traits that seem important,

such as respect for other people, empathy, tolerance, honesty, kindness, patience, open-mindedness, acceptance, responsibility, self-control, and self-management (Berkowitz & Grych, 1998). Nevertheless, there is a noticeable absence of either an empirically or theoretically grounded rationale in choosing which virtues to promote, as well as which components, elements, or characteristics are necessary to develop among young children (Eccles & Gootman, 2002).

However, several lines of study may fall under the umbrella of theory and research on children's strengths, though they are not usually labeled as such. For example, there is research regarding children's self-control (Betts & Rotenberg, 2007), honesty and kindness (Zeece, 2009), optimism (Diesendruck & Lindenbaum, 2009), use of humor (Semrud-Clikeman & Glass, 2010), and leadership and prosocial actions (Grusec, Davidov, & Lundell, 2002). Further, there are indications for individual differences in some of the components of good character among very young children (Park & Peterson, 2006a). For example, children at two and three years of age exhibit consistent individual differences in caring, fairness, and justice (Dunn, 1988), teamwork (Eckerman, Davis, & Didow, 1989), and self-regulation and control (Vaughan, Kopp, & Krakow, 1984).

These empirical studies shed some light on the development of the components of character. Perhaps, more complex character strengths (e.g. open-mindedness, forgiveness, and spirituality) do not fully develop until adolescence, but the capacity for many other character strengths seem to emerge as early as age one and start to consolidate themselves in the third year of life as stable traits (Park & Peterson, 2006a).

The conceptualization of character in the present paper follows the Values in Action (VIA) Institute's classification of strengths. The VIA Institute identified 24 widely acknowledged and acclaimed character strengths and organized them under six broad virtues (Peterson & Seligman, 2004). These strengths have appeared across cultures and throughout history in various writings by philosophers and spiritual leaders as important for the good life.

Character strengths are the psychological processes or mechanisms that define the virtues, and refer to those aspects of personality that are morally valued (Park, Peterson, & Seligman, 2004). The first category of virtues in the VIA classification is wisdom and knowledge, that relate to the acquisition and use of information and as a result have the potential to affect cognitive engagement to school (Arnone, Grabowski, & Rynd, 1994). The second category includes the strengths of courage that entail the exercise of will to accomplish goals in the face of external or internal opposition, and may contribute to cognitive adjustment to school (Peterson & Seligman, 2004). The third category includes the strengths of humanity that are

manifested in caring interpersonal relationships with others. The fourth category of virtues includes the strengths of justice that are broadly interpersonal, and relevant to the optimal interaction between the individual and the group. Both the strengths of humanity and justice may be related to social school adjustment.

The fifth category of virtues includes the strengths of temperance that are positive traits that protect people from excess. These strengths represent types of emotional and behavioral control and regulation. In particular, both regulation of emotion in appropriate social interaction and goal-directed behavior may play important roles in behavioral adjustment to school. Finally, the sixth category of virtues is the strengths of transcendence that allow individuals to forge connections to the larger universe and thereby provide meaning to their lives (Peterson & Seligman, 2004). Although this category includes the more sophisticated character strengths in comparison to previous categories, in fact, children exhibit frequently transcendence strengths, like appreciation of beauty and humor (Park & Peterson, 2006a). The strengths of transcendence were substantially related to well-being and life satisfaction (Peterson, Ruch, Beermann, Park, & Seligman, 2007), and may support positive affect during school time and as a result promote emotional adjustment to school.

The original VIA classification was driven by a comprehensive literature review (Peterson & Seligman, 2004). However, when the VIA Inventory of Strengths for adults (VIA-IS) and for youth (the VIA-Y) have been subjected to empirical analysis only moderate support has been found for the conceptual structure of six-factor model (Shryack, Steger, Krueger, & Kallie, 2010). In several studies with the VIA-IS four to five factors models have been found (Brdar & Kashdan, 2009; Peterson & Park, 2004; Peterson & Seligman, 2004; Shryack et al., 2010). In studies with youth, results converged also to four or five factors (Dahlsgaard, 2005; Gillham et al., 2011; Park & Peterson, 2006b; Peterson & Park, 2004; Peterson & Seligman, 2004). Factors that have tended to replicate across most studies in both youth and adult samples are temperance strengths, transcendence strengths, interpersonal strengths, and intellectual strengths. Most of these studies unified the strengths of justice and humanity into a single factor, and were unable to find evidence for a courage factor (Park & Peterson, 2005; Peterson & Seligman, 2004). Considering this absence of a consistent factor solution, another aim of the present study is to reexamine the underlying factor structure of the VIA-IS and the VIA-P (the parent version of the VIA-IS).

In addition, the present study aimed to explore whether parents' and children's character strengths would predict children's cognitive, social, behavioral,

and emotional adjustment to the first year of elementary school. We assumed that parental and children's character strengths, parental education, and socioeconomic status would positively predict first-grade adjustment.

Method

Participants

Participants in this study were 479 parents and 16 first-grade teachers of 479 first-grade schoolchildren aged 6.2–7.4 (Mean age = 6.52 years, 248 girls, 231 boys) from five public elementary schools in the center of Israel. A request to participate in the study was sent to 584 families. Eighty-two percent from the families agreed to participate. Parents themselves could decide which parent will complete the survey. This led to a gender-related selection bias as the questionnaire was primarily filled out by the mothers (442 mothers, 37 fathers). All teachers were female and were experienced at the first-grade level. As an incentive participants were given the possibility to participate in a raffle of books gift vouchers with a value of 50\$. Socioeconomic Status (low, medium, and high) was based on the Israeli Central Bureau of Statistics classification (CBS, 2010), and was determined by a set of income thresholds that vary by family composition. The study population was relatively homogeneous for socioeconomic status with mostly (77%) middle SES, 13% high SES, and 10% low SES. In addition, children were mostly Jewish (98%). 7% of the Jewish children reported Orthodox adherence, 35% traditional, and 58% secular. Parental educational level, measured by number of years of formal education, was divided to 2% primary school graduates, 43% high school graduates, and 55% college or university graduates. Parents also provided responses to questions regarding marital status (63% married, 9% separated, 23% divorced, and 5% never married).

Instruments

The Hebrew adaptation of the VIA-IS

Parents' strengths of character were measured by the Hebrew adaptation (Littman-Ovadia & Lavy, 2010) of the VIA-IS (Peterson, Park, & Seligman, 2005). The 240-item questionnaire measures 24 different strengths of character (10 items for each of the 24 strengths). Ratings are made on a five-point scale ranging from 1 (*not at all like me*) to 5 (*very much like me*). For instance, *Love of learning* is measured by items such as 'I love to learn new things' and *Curiosity* is measured by items such as 'If I want to know something, I immediately go to the library or the Internet and look it up'. Scores were calculated by averaging items for each of the strengths. The VIA-IS provided promising

evidence of the reliability and validity. Most scales in the current study had moderate to satisfactory alphas (0.73–0.86), and had been validated against measures of subjective well-being ($r_s = 0.24\text{--}0.57$, $ps < 0.001$), life satisfaction ($r_s = 0.12\text{--}0.43$, $ps < 0.01$), and positive affect ($r_s = 0.17\text{--}0.57$, $ps < 0.001$).

The VIA-IS for Children

Children's strengths of character were measured by the parent version of the VIA-IS (Dahlsgaard, 2005). The 127-item questionnaire measures 24 different strengths of character (4–9 items for each of the 24 strengths). The VIA-P is age-appropriate for parents of first-grade children. Parents rated their children on a five-point Likert scale (5 = *very much like my child* to 1 = *not like my child at all*) to respond to each question (e.g. 'My child is interested in more things than most other kids his age'; 'My child looks forward to each new day'). Scores were calculated by averaging items for each of the strengths. The VIA-P provided promising evidence of the reliability and validity. The 24 subscales in the current study had moderate to satisfactory alphas (0.71–0.87). The VIA-P scales have been validated against other nomination of character strengths (Dahlsgaard, 2005) and have yielded significant correlations with parents' reports of measures of children's life satisfaction ($r_s = 0.51\text{--}0.63$, $ps < 0.001$), global self worth ($r_s = 0.37\text{--}0.52$, $ps < 0.001$), social acceptance ($r_s = 0.34\text{--}0.44$, $ps < 0.001$), and adaptive functioning ($r_s = 0.38\text{--}0.42$, $ps < 0.001$).

Children's adjustment

Children's school adjustment was measured by the 45-item School Engagement Survey (The National Center for School Engagement – NCSE, 2006), consisting of three scales of engagement: behavioral engagement (e.g. 'The child follows the rules at school'), cognitive engagement (e.g. 'The child is interested in the work he gets to do in the class'), and emotional engagement (e.g. 'The child is happy to be at school'). Teachers evaluated the fitness of the descriptions for their students on a five-point scale, ranging from 1 (*not at all*) to 5 (*yes, fit well*). Three scale scores were constructed separately by averaging items for each scale. Scales met and exceeded the desired criterion for reliability (Cronbach Alphas in the current study ranged from 0.80 to 0.92), and validity (NSCE, 2006), with significant correlations between the different scales and GPA ($r_s = 0.345\text{--}0.369$, $ps < 0.005$, $N = 170$), Math grades, $r_s = 0.40\text{--}0.48$, $ps < 0.01$, and English grades, $r_s = 0.37\text{--}0.43$, $ps < 0.05$.

In addition, in order to assess children's social adjustment teachers completed the Friends subscale of The School Adjustment – Parent Report (CPPRG, 2001), adapted for teachers for the purpose of the

present study. The six-item subscale assesses the child's interactions with other students in the school context. Example items include 'The child does not have as many friends at school' and 'The child gets along well with other kids at school this year'. Items were rated on a five-point scale (1 = strongly disagree; 5 = strongly agree), and were averaged for the final social adjustment score. The friends subscale yielded a good internal consistency in the study (alpha coefficient = 0.83).

Procedure

The data collection started in the middle of the school year. Children's teachers were asked to complete standardized questionnaires about their students' cognitive, social, emotional, and behavioral school adjustment. In addition, children's parents completed socio-demographic data and parental and children's character strengths questionnaires based on voluntary participation.

After receiving municipal and academic ethics committee authorization and written consent from parents, each parent and first-grade teacher received a questionnaire package. First-grade teachers completed the questionnaires during teachers' meetings. Parental questionnaires were given to the participating children to take home and return to school. Confidentiality and anonymity were ensured.

Results

The factor structure of the VIA-IS

A principal component analysis (PCA) was conducted to identify the factor structure of the VIA-IS and the parent version of the VIA-Youth (VIA-P). Confirmatory factor analyses indicated that the original six-factor models did not fit our data (Dahlsgaard, 2005; Peterson & Seligman, 2004). For both inventories, we conducted the PCA on the 24 strengths scales using a direct oblimin (oblique) rotation, which enables strengths scores to correlate with each other. The PCA yielded an overall Kaiser–Meyer–Olkin measure of sampling adequacy statistic of 0.92 for the VIA-IS and 0.89 for the VIA-P ('superb' according to Field, 2009), indicated that the correlations between the strength scales were sufficiently large for PCA. The analysis of the VIA-IS yielded four components with eigenvalues over Kaiser's criterion of 1, which in combination explained 64% of the variance. For the VIA-P, the PCA revealed five factors with eigenvalues greater than 1.0 that accounted for 70% of the variance in the data. Tables 1 and 2 show the factor loadings after rotation.

Based on examination of the loadings component and pattern matrices, we labeled the factors as follows:

Table 1. Factor analysis of the VIA-IS ($N=479$).

VIA character strengths	Interpersonal strengths	Intellectual strengths	Temperance strengths	Transcendence strengths
Capacity to love	0.75			
Social intelligence	0.72			
Kindness	0.68			
Fairness	0.67			
Forgiveness	0.61			
Leadership	0.54			
Teamwork	0.52			
Vitality	0.39			
Modesty	0.35			
Judgment		0.79		
Perspective		0.75		
Creativity		0.71		
Curiosity		0.51		
Love of learning		0.46		
Self regulation			0.65	
Prudence			0.61	
Persistence			0.45	
Authenticity			0.42	
Appreciation of beauty			0.35	
Bravery			0.34	
Hope				0.64
Spirituality				0.61
Humor				0.45
Gratitude				0.41
Eigenvalue	11.34	1.64	1.17	1.07
Variance (%)	48.11	7.54	4.32	4.15

Note: Factor loadings < 0.3 are suppressed.

Table 2. Factor analysis of the VIA-P ($N=479$).

VIA character strengths	Temperance strengths	Intellectual strengths	Transcendence strengths	Interpersonal strengths	Group interaction strengths
Self regulation	0.75				
Persistence	0.61				
Prudence	0.54				
Authenticity	0.51				
Modesty	0.48				
Curiosity		0.79			
Love of learning		0.74			
Appreciation of beauty		0.68			
Creativity		0.54			
Judgment		0.43			
Vitality			0.78		
Hope			0.69		
Gratitude			0.56		
Spirituality			0.42		
Humor				0.74	
Social Intelligence				0.65	
Kindness				0.57	
Capacity to love				0.45	
Forgiveness				0.43	
Perspective				0.40	
Teamwork					0.70
Leadership					0.65
Bravery					0.55
Fairness					0.47
Eigenvalue	11.15	1.95	1.43	1.18	1.05
Variance (%)	46.70	8.95	6.33	4.39	4.06

Note: Factor loadings < 0.3 are suppressed.

(a) *Temperance strengths* involve types of emotional and behavioral control and regulation. (b) *Intellectual strengths* include strengths that entail the acquisition and use of knowledge. (c) *Transcendence strengths* involve strengths that provide appreciation, meaning, and positive stance toward life. (d) *Interpersonal strengths* involve tending and befriending others. (e) *Group interaction strengths* – this factor was found only in the VIA-P and included strengths which are particularly relevant for leading, guiding, and maintaining good relations within the group.

Character strengths factors and school adjustment

Descriptive statistics for parental and children’s strengths factors and school adjustment measures are presented in Table 3. Table 4 shows Pearson correlations between parental and children’s strengths factors. Positive significant correlations emerged between parents’ and children’s interpersonal strengths ($r=0.20, p < 0.01$), intellectual strengths ($r=0.34, p < 0.001$), and temperance strengths ($r=0.23, p < 0.01$).

The study hypothesis assumed that parental and children’s character strengths, parental education, and socioeconomic status would positively predict children’s cognitive, social, behavioral, and emotional

adjustment to school. Correlations of parental and children’s strengths factors with school adjustment indices are presented in Table 5. In addition, positive significant correlations emerged between cognitive and social adjustment to school ($r=0.31, p < 0.001$) and between emotional and behavioral adjustment to school ($r=0.58, p < 0.001$)

In order to examine the study hypothesis we have conducted stepwise multiple regression analyses with the parents’ and children’s character strengths factors

Table 3. Means and SDs for the strength factors and school adjustment measures.

Strength factors	Parents		Children	
	Mean	SD	Mean	SD
Interpersonal strengths	3.89	0.63	3.60	0.53
Intellectual strengths	3.78	0.65	3.80	0.51
Temperance strengths	3.53	0.56	2.94	0.62
Transcendence strengths	3.77	0.63	3.57	0.60
Group interaction strengths	–	–	3.88	0.57
School adjustment				
Cognitive adjustment	–	–	2.87	0.73
Social adjustment	–	–	4.06	0.63
Emotional adjustment	–	–	2.35	0.62
Behavioral adjustment	–	–	3.87	0.79

Table 4. Pearson correlations between parental and children’s strengths factors.

		Children’s strengths factors			
		Interpersonal strengths	Intellectual strengths	Temperance strengths	Transcendence strengths
Parents’ strengths factors	Interpersonal strengths	0.20**	0.07	0.05	–0.02
	Intellectual strengths	0.05	0.34**	0.10	0.02
	Temperance strengths	0.11	0.07	0.23**	0.03
	Transcendence strengths	0.09	–0.03	0.04	0.08

Note: ** $p < 0.01$.

Table 5. Correlations of parental and children’s strengths factors with school adjustment subscales.

Character strengths	Cognitive adjustment	Social adjustment	Emotional adjustment	Behavioral adjustment
VIA-IS factors (parents’ strengths)				
Interpersonal strengths	0.25**	0.26**	0.03	0.04
Intellectual strengths	0.32**	0.04	–0.03	0.08
Temperance strengths	0.06	0.07	0.25**	0.26**
Transcendence strengths	–0.03	0.02	0.05	0.03
VIA-P factors (children’s strengths)				
Interpersonal strengths	0.11	0.47**	0.08	0.03
Intellectual strengths	0.36**	0.09	0.24**	0.22**
Temperance strengths	0.10	0.05	0.27**	0.34**
Transcendence strengths	0.02	0.24**	0.31**	0.05
Group interaction strengths	0.09	0.42**	0.14*	0.11

Note: * $p < 0.05$, ** $p < 0.01$.

identified in the PCA (four factors for parents and five factors for children), parental education, and socioeconomic status serving as the predictors, and the school adjustment indices serving as the outcome variables. In order to rule out a problem of multicollinearity among the independent variables, tolerance and variation–inflation factor were tested. Results showed that multicollinearity did not disturb the final models.

For cognitive adjustment to school as the outcome variable, four factors entered the final model at a significant level—children’s intellectual strengths, $\beta=0.26$, $p<0.001$, parents’ intellectual strengths, $\beta=0.21$, $p=0.001$, parents’ interpersonal strengths, $\beta=0.14$, $p=0.003$, and parental education, $\beta=0.07$, $p=0.01$. These predictors produced a multiple correlation of $R=0.63$, $R^2=0.40$, $F(4,474)=22.37$, $p<0.001$, indicating that approximately 40% of cognitive school adjustment variance could be accounted for by the linear combination of these predictors.

For social adjustment to school as the outcome variable, four factors entered the final model at a significant level – children’s interpersonal strengths, $\beta=0.24$, $p<0.001$, children’s transcendence strengths, $\beta=0.19$, $p<0.001$, children’s group interaction strengths, $\beta=0.11$, $p=0.004$, and parents’ interpersonal strengths, $\beta=0.06$, $p=0.01$. These predictors produced a multiple correlation of $R=0.58$, $R^2=0.34$, $F(4,474)=19.71$, $p<0.001$, indicating that approximately 34% of the child’s social adjustment variance could be accounted for by the linear combination of these predictors.

With behavioral adjustment to school as the outcome variable, three factors entered the final model at a significant level – children’s temperance strengths, $\beta=0.38$, $p<0.001$, parents’ temperance strengths, $\beta=0.32$, $p<0.001$, and children’s intellectual strengths, $\beta=0.17$, $p=0.001$. These predictors produced a multiple correlation of $R=0.61$, $R^2=0.37$, $F(3,475)=20.13$, $p<0.001$.

Finally, with emotional adjustment to school as the outcome variable, four factors entered the final model at a significant level – children’s transcendence strengths, $\beta=0.31$, $p<0.001$, children’s temperance strengths, $\beta=0.26$, $p<0.001$, parents’ temperance strengths, $\beta=0.18$, $p=0.001$, and children’s intellectual strengths, $\beta=0.10$, $p=0.007$. These predictors produced a multiple correlation of $R=0.65$, $R^2=0.42$, $F(4,474)=25.41$, $p<0.001$.

Discussion

It has been well documented that children’s and familial early difficulties in the preschool period are associated with problems in first-grade adjustment. Taking a different approach, the present study

provided preliminary evidence for associations between parental and children’s character strengths and positive adjustment to first grade.

Our findings exposed significant associations between children’s and parents’ character strengths and the child’s ability to cope with school demands, meet the new academic challenges, negotiate successfully the new school and teacher expectations, and gain acceptance into a new peer group. Parts of our findings are consistent with previous findings regarding elementary school adjustment, and others raise new aspects, which require more in-depth discussion.

For example, similar to previous studies, our findings show that parental levels of education are related to child’s academic adjustment to school. However, parental intellectual and interpersonal strengths also predicted the child’s investment in learning. In addition, the child’s intellectual strengths were significantly related to cognitive adjustment to school. Interestingly, the intellectual strengths, which were called the strengths of the ‘head’ (Park & Peterson, 2010), are related to motivational aspects of learning such as curiosity and love of learning, rather than objective learning capabilities as measured traditionally by intelligence tests. It has long been known that factors other than ability influence children’s achievements. Thus, the motivational factor has been found to play a central role in children’s challenge seeking, persistence in the face of difficulty, and effective development of their skills (Dweck, 1986).

Curiosity and motivation for learning are natural drives among children especially during infancy and early childhood. However, several environmental factors can suppress the native curiosity such as low tolerance for failure, atmosphere of fear and disapproval, and environments in which curiosity is balked, and children’s inquiries are neglected (Loewenstein, 1994). The combination of parental high levels of education, intellectual strengths, and interpersonal strengths, possibly facilitates a positive and warm stimulating environment for children, allowing a secure base for learning.

Many preschool programs today focus on helping young children acquire academic skills and abilities such as skills in math, reading, and regulation of attention. These programs promote young children’s cognitive readiness for learning, and of course are important. Nonetheless, it is possible that without developing motivation for learning, openness to experience, and positive feelings about learning new things, children may have difficulties to achieve optimal performance at school. In light of this, parents and educators should offer stimulus-rich environments with a wide variety of learning materials that cultivate basic learning strengths and promote motivation and emotional readiness for learning.

Beyond the 'head strengths' that are intellectual and self-oriented, children's strengths of the 'heart', (Park & Peterson, 2010) that are manifested in caring interpersonal relationships and group interactions were found as significant predictors of social school adjustment. In addition, the factor of parental interpersonal strengths has been found as significant predictor of children's social integration in the classroom. It is widely believed that children's everyday experiences in relationships with their parents are fundamental to their development of social skills. The social learning theory model, assumes that parenting practices act to model, evoke, and selectively reinforce child social behavior, thereby influencing peer relations (Putallaz, Costanzo, Grimes, & Lipton, 1998). In particular, social competence is learned by children through observation and participation, from the way their parents treat them, and the way their parents treat others (Maccoby & Martin, 1983).

There is a growing interest in the US and Europe in preparing children for school during early childhood education and care (NCLB, 2001). In many countries in these areas, kindergartens are firmly institutionalized in public elementary schools, and playtime in kindergarten is giving way to worksheets, math drills, and standardized tests. Hence, it is important for preschool curricula to include not only academic skills but also social-emotional strengths. However, fostering complex psychological structures such as open-mindedness, hope, or social intelligence requires consistent and prolonged interventions. Children develop competencies in these foundational skills through observation, interactions with peers and adults, and learning experiences. These strengths should be emphasized in very early stages of development, and therefore familial and pre-kindergarten environments are important in their promotion.

Strengths of temperance among parents and children were related both to emotional and behavioral school adjustment. These strengths represent types of emotional and behavioral control and regulation. One of the most significant challenges in first-grade adjustment is the heightened expectations for delay of gratification and self-control. Temperance strengths enable the child to exert control over his emotions, impulses, and behaviors. In the school context, they can promote the ability to follow the rules and adhere to classroom norms, and hence can contribute to positive affective reactions to school context.

Although self-regulation qualities are considered to have a temperamental basis, most researchers posit an interplay with social experience, especially with parental socialization practices (Karreman, van-Tuijl, van-Aken, & Dekovic, 2006). As children grow older, the move from externally to internally regulated behavior takes place. The transition to formal schooling takes another leap forward in expectations for self-

regulation. It involves drastic changes from the protective and regulative preschool environments to a new environment of heightened expectations for behavioral compliance and delay of gratification and self-control. These findings highlight the importance of parental temperance strengths for children's self-regulation at school.

Findings revealed significant positive correlations between parents' and children's intellectual, interpersonal, and temperance strengths factors. Although these findings may reflect pattern of genetic influences, they also can be explained in terms of environmental influences. Character strengths can be distinguished from related individual differences such as talents and abilities. They can be taught and nurtured, and this makes them fundamentally different from pervasive personality traits. Such environmental influences can increase the likelihood that children would develop strengths that are modeled by their parents.

The traditional conceptualization of strengths refers to a positive trait that enables optimal functioning, development, and performance for the individual. The contribution of parental strengths to children's first-grade adjustment indicates that human strengths have interpersonal affect that may reverberate and influence through close significant others. The interpersonal meaning of strengths can establish further studies on the reciprocal influences of character strengths in various social, interpersonal, and familial contexts.

In summary, it is apparent that beyond intellectual skills, children need a combination of motivational qualities, and socio-emotional skills to be ready for school. To be prepared for school, children must also be excited and curious about learning. They must be able to understand the feelings of others, control their own feelings and behaviors, and socialize with their peers.

Research limitations and implications

This study has several limitations that should be addressed in further research. First, the cross-sectional study design examined statistical associations between the study variables and could not establish cause-effect relationships between character strengths and school adjustment. In addition, a longitudinal study design would more appropriately address the study question, as changes in character strengths and school adjustment over time could also be assessed.

Second, since young children are too young to complete self-report questionnaires, the study results relied on the reports of parents and teachers that might provide inaccurate or biased reports, especially in the case of children's strengths.

Third, children's and parents' character strengths measures were drawn from parents' reports. This raises the problem of shared method variance. Nevertheless, the two strengths measures did not have equal factor structures, and it can provide evidence for the reliability of the reports.

Fourth, the study is conducted in Israel, where children begin elementary school at the conclusion of kindergarten at six years of age, in contrast to K-12 educational system, where kindergarten is fully integrated into the school. This fundamental difference in educational system may decrease the external validity of the present findings and demands further exploration in other areas and educational systems around the world.

Finally, in the absence of a satisfactory theoretical or empirical basis for the development of character among young children, it is important to explore in larger samples the developmental trajectories of specific strengths during early childhood and to examine their relations to school adjustment during different segments of school years.

Practical implications

This study highlights certain strengths' factors that may palliate the complex transition from kindergarten to elementary school. Broadening this initial line of inquiry in further research may be translated in the long term into areas for intervention, allowing efforts to be directed toward creating family and school climates that encourage the development and nurturance of broad expressions of children's and parental character strengths and across various contexts.

This line of inquiry has broader implications for early childhood education and care. One of the major challenges of pre-primary education is to develop and implement curricula that serve all these domains of skills and competences equally well. Integrating the traditional school skills in the areas of language, literacy, math, and science with social-emotional skills, based on strengths building practices, can produce a high quality pre-elementary education, that help children to meet the varied demands of school years.

References

Arnone, M., Grabowski, B., & Rynd, C. (1994). Curiosity as a personality variable influencing learning in a learner controlled lesson with and without advisement. *Educational Technology Research and Development, 42*, 5–20.

Berkowitz, M.W., & Grych, J.H. (1998). Fostering goodness: Teaching parents to facilitate children's moral development. *Journal of Moral Education, 27*, 371–391.

Betts, L.R., & Rotenberg, K.J. (2007). Trustworthiness, friendships and self-control: Factors that contribute to young children's school adjustment. *Infant and Child Development, 16*, 491–508.

Birch, S.H., & Ladd, G.W. (1996). Continuity and change in the quality of teacher-child relationships: Link's with children's early school adjustment. *Child Development, 67*, 980–1012.

Brdar, B., & Kashdan, T. (2009). Character strengths and well-being in Croatia: An empirical investigation of structure and correlates. *Journal of Research in Personality, 44*, 151–154.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Burchinal, M.R., Peisner-Feinberg, E., Pianta, R., & Howes, C. (2002). Development of academic skills from preschool through second grade: Family and classroom predictors of developmental trajectories. *Journal of School Psychology, 40*, 415–436.

Carter, A.S., Wagmiller, R.J., Gray, S.A., McCarthy, K.J., Horwitz, S.M., & Briggs-Gowan, M.J. (2010). Prevalence of DSM-IV disorder in a representative, healthy birth cohort at school entry: Sociodemographic risks and social adaptation. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*, 635–636.

CBS, (2010). *Statistical abstract of Israel No. 61*. Jerusalem, Israel: The Central Bureau of Statistics.

CPPRG, (2001). *Conduct problems prevention research group* (School adjustment – Parent report: Grade 6 technical report). Unpublished technical report.

Dahlsgaard, K.K. (2005). Is virtue more than its own reward? Character strengths and their relation to well-being in a prospective longitudinal study of middle school-aged adolescents. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, p. 3441.

Diesendruck, G., & Lindenbaum, T. (2009). Self-protective optimism: Children's biased beliefs about the stability of traits. *Social Development, 18*, 946–961.

Duncan, G.J., Dowsett, C.J., Claessens, A., Magnuson, K., & Huston, A.C. (2007). School readiness and later achievement. *Developmental Psychology, 43*, 1428–1446.

Dunn, J. (1988). *The beginnings of social understanding*. Cambridge, MA: Harvard University Press.

Dweck, C.S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040–1048.

Eccles, J., & Gootman, J.A. (2002). *Community programs to promote youth development*. Washington, DC: National Academies Press.

Eckerman, C.O., Davis, C.C., & Didow, S.M. (1989). Toddler's emerging ways of achieving social coordinations with a peer. *Child Development, 6*, 440–453.

Fantuzzo, J., McWayne, C., Perry, M.A., & Childs, S. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban, low-income children. *School Psychology Review, 33*, 467–480.

Field, A.P. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.

Finn, J.D., Pannozzo, G.M., & Voelkl, K.E. (1995). Disruptive and inattentive – Withdrawn behavior and

- achievement among fourth graders. *The Elementary School Journal*, 95, 421–435.
- Fredricks, J.A., Blumenfeld, P.C., & Paris, A.H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74, 59–109.
- Furnes, B., & Samuelsson, S. (2009). Preschool cognitive and language skills predicting kindergarten and grade 1 reading and spelling: A cross-linguistic comparison. *Journal of Research in Reading*, 32, 275–292.
- Gillham, J., Adams-Deutsch, Z., Werner, J., Reivich, K., Coulter-Heindl, V., Linkins, M., . . . Seligman, M.E.P. (2011). Character strengths predict subjective well-being during adolescence. *The Journal of Positive Psychology*, 6, 31–44.
- Greenberg, M.T., Coie, J.D., Lengua, L.J., & Pinderhughes, E.E. (1999). Predicting developmental outcomes at school entry using a multiple-risk model: Four American communities. *Developmental Psychology*, 35, 403–417.
- Grusec, J.E., Davidov, M., & Lundell, L. (2002). Prosocial and helping behavior. In P.K. Smith & C.H. Hart (Eds.), *Blackwell handbook of childhood social development* (pp. 457–474). Oxford: Blackwell.
- Huver, R.M.E., Otten, R., de Vries, H., & Engels, R.C. (2010). Personality and parenting style in parents of adolescents. *Journal of Adolescence*, 33, 395–402.
- Karreman, A., van-Tuijl, C., van-Aken, M.A., & Dekovic, M. (2006). Parenting and self-regulation in preschoolers: A meta-analysis. *Infant and Child Development*, 15, 561–579.
- Kashdan, T.B., Pelham, W.E., Lang, A.R., Hoza, B., Jacob, R.G., & Jennings, J.R. (2000). Hope and optimism as human strengths in parents of children with externalizing disorders: Stress is in the eye of the beholder. *Journal of Social and Clinical Psychology*, 21, 441–468.
- Kochanska, G., Clark, L.A., & Goldman, M.S. (1997). Implications of mothers' personality for their parenting and their young children's developmental outcomes. *Journal of Personality*, 65, 388–420.
- Ladd, G.W., & Dinella, L.M. (2009). Continuity and change in early school engagement: Predictive of children's achievement trajectories from first to eighth grade?. *Journal of Educational Psychology*, 101, 190–206.
- Ladd, J.M., & Price, J.M. (1987). Predicting children's social and school adjustment following the transition from preschool to kindergarten. *Child Development*, 58, 1168–1189.
- Linley, A. (2007). *Average to A+: Realising strengths in yourself and others*. Coventry: CAPP Press.
- Littman-Ovadia, H. & Lavy, S. (2010). *The Hebrew adaptation of the VIA inventory of strengths (VIA-IS)*. Retrieved from <http://www.viacharacter.org/SURVEYS/AboutSurveys.aspx>
- Loewenstein, G. (1994). The psychology of curiosity: A review and interpretation. *Psychological Bulletin*, 116, 75–98.
- Maccoby, E., & Martin, J. (1983). Socialization in the context of the family: Parent-child interaction. In E.M. Hetherington (Ed.), P.H. Mussen (Series Ed.), *Handbook of child psychology. Socialization, personality, and social development* (Vol. 4, pp. 1–101). New York, NY: Wiley.
- Magnuson, K.A., Meyers, M.K., Ruhm, C.J., & Waldfogel, J. (2004). Inequality in preschool education and school readiness. *American Educational Research Journal*, 41, 115–157.
- Marks, H.M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal*, 37, 153–184.
- Mashburn, A.J., & Pianta, R.C. (2006). Social relationships and school readiness. *Early Education and Development*, 17, 151–176.
- Missiuna, C., Moll, S., King, G., King, S., & Law, M. (2007). A troubling trajectory: The impact of coordination difficulties on children's development. *Physical and Occupational Therapy in Pediatrics*, 27, 81–101.
- National Association for the Education of Young Children (NAEYC). (1996). *NAEYC's position statement on school readiness*. Retrieved from www.naeyc.org/about/positions/PSREDY98.asp
- NCLB (2001). *No Child Left Behind Act of 2001*. (Pub. L. No. 107-110). Retrieved from <http://thomas.loc.gov/>
- NCSE, (2006). *Quantifying school engagement: Research report*. Denver: National Center for School Engagement.
- Park, N., & Peterson, C. (2005). The values in action inventory of character strengths for youth. In K.A. Moore & L.H. Lippman (Eds.), *What do children need to flourish? Conceptualizing and measuring indicators of positive development* (pp. 13–23). New York, NY: Springer.
- Park, N., & Peterson, C. (2006a). Character strengths and happiness among young children: Content analysis of parental descriptions. *Journal of Happiness Studies*, 7, 323–341.
- Park, N., & Peterson, C. (2006b). Moral competence and character strengths among adolescents: The development and validation of the values in action inventory of strengths for youth. *Journal of Adolescence*, 29, 891–909.
- Park, N., & Peterson, C. (2010). Does it matter where we live? The urban psychology of character strengths. *American Psychologist*, 65, 535–547.
- Park, N., Peterson, C., & Seligman, M. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, 23, 603–619.
- Peterson, C., & Park, N. (2004). Classification and measurement of character strengths: Implications for practice. In P.A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 433–446). Hoboken, NJ: John Wiley and Sons Inc.
- Peterson, C., Park, N., & Seligman, M.E.P. (2005). Assessment of character strengths. In G.P. Koocher, J.C. Norcross, & S.S. Hill III (Eds.), *Psychologists' desk reference* (2nd ed., pp. 93–98). New York, NY: Oxford University Press.
- Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M.E.P. (2007). Strengths of character, orientations to happiness, and life satisfaction. *The Journal of Positive Psychology*, 2, 149–156.
- Peterson, C., & Seligman, M.E.P. (2004). *Character strengths and virtues: A classification and handbook*. New York, NY: Oxford University Press/Washington, DC: American Psychological Association.
- Pianta, R.C., Belsky, J., Houts, R., & Morrison, F. (2007). Opportunities to learn in America's elementary classrooms. *Science*, 315, 1795–1796.

- Pianta, R.C., & Harbers, K. (1996). Observing mother and child behavior in a problem solving situation at school entry: Relations with academic achievement. *Journal of School Psychology, 34*, 307–322.
- Pianta, R.C., & Walsh, D.J. (1996). *High-Risk children in schools: Constructing sustaining relationships*. New York, NY: Routledge.
- Putallaz, M., Costanzo, P.R., Grimes, C.L., & Lipton, D. (1998). Intergenerational continuities and their influences on children's social development. *Social Development, 7*, 389–427.
- Scales, P., Benson, P., Leffert, N., & Blyth, D.A. (2000). The contribution of developmental assets to the prediction of thriving among adolescents. *Applied Developmental Science, 4*, 27–46.
- Seligman, M.E.P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5–14.
- Semrud-Clikeman, M., & Glass, K. (2010). The relation of humor and child development: Social, adaptive, and emotional aspects. *Journal of Child Neurology, 25*, 1248–1260.
- Shryack, J., Steger, M., Krueger, R., & Kallie, C. (2010). The structure of virtue: An empirical investigation of the dimensionality of the virtues in action inventory of strengths. *Personality and Individual Differences, 48*, 714–719.
- Susan, R.S. (2006). Rethinking parent involvement during the transition to first grade: A focus on Asian American families. *School Community Journal, 16*, 107–125.
- Vaughan, B.E., Kopp, C.B., & Krakow, J.B. (1984). The emergence and consolidation of self-control from eighteen to thirty months of age: Normative trends and individual differences. *Child Development, 55*, 990–1004.
- Vecchiotti, S. (2003). Kindergarten: An overlooked educational policy priority. *Social Policy Report, 17*, 3–19.
- Whitbeck, L.B. (1999). Primary socialization theory: It all begins with the family. *Substance Use and Misuse, 34*, 1025–1032.
- Zeece, P.D. (2009). Using current literature selections to nurture the development of kindness in young children. *Early Childhood Education Journal, 36*, 447–452.