Promoting Social and Emotional Competencies among Young Children in Croatia with Preschool PATHS.

Josipa Mihic[a][1], Miranda Novak[a], Josipa Basic[b] and Robert L. Nix[c].

[a]Faculty of Education and Rehabilitation Sciences, University of Zagreb, Croatia

[b]Faculty of Education and Rehabilitation Sciences, University of Zagreb, Croatia (ret.)

[c] University of Wisconsin-Madison, USA

Preschool PATHS (Promoting Alternative Thinking Strategies) is an evidence-based universal prevention program focused on promoting children's social and emotional competencies and reducing the likelihood of behaviour problems and negative relationships with peers and teachers. This paper examines changes in the social and emotional competencies of the first children to participate in Preschool PATHS in Croatia. This study included 164 children, ages 3-6, in 12 preschool classrooms in three cities across Croatia, who participated in the classroom-based Preschool PATHS curriculum. At the beginning and end of the preschool year, teachers completed well-validated and reliable assessments of social and emotional competencies on each child. Hierarchical linear models revealed statistically significant and substantial improvements in prosocial behaviour, emotion regulation, emotion symptoms, peer problems, relational aggression, conduct problems, and hyperactive-impulsive behaviour. Study findings reveal significant changes in children's social and emotional competencies during preschool. This time may present a unique opportunity to buttress children's skills and improve long-term school success through the implementation of a rigorous empirically-validated prevention program such as Preschool PATHS.

Keywords: social and emotional competence, universal preventive intervention, preschool children, quasi-experimental trial, PATHS

[1]
    Corresponding author. Email address: josipa.mihic@erf.hr

Introduction

Social and emotional competencies encompass the ability to navigate the challenges of interacting with others in ways that facilitate getting one's own needs met, forming satisfying mutually-respectful relationships, solving problems involving others, and continually adapting to changing social circumstances (Elias et al., 1997). To navigate the social challenges of school, children must be aware of their own feelings and the feelings of their classmates, have the words to describe feelings and communicate effectively, and understand the relation between social interactions and their feelings (Denham, 1998; Saarni, 1999). All of these skills are necessary for competent emotion regulation. When children are competent at emotion regulation, they are more likely to have the cognitive resources necessary to pay attention (Blair, 2002), to inhibit impulses, understand that other people might have a different perspective on a problem, and consider alternative solutions (Raver, Blackburn, Bancroft, & Torp, 1999; Rudolph & Heller, 1997).

If children have the social and emotional competencies necessary to help others, take turns, and share – as well as the ability to inhibit becoming physically aggressive when upset – they are more likely to have positive relationships with the other children in their classrooms and with their teachers (Coolahan, Fantuzzo, Mendez, & McDermott, 2000). In turn, those positive relationships motivate further emotion regulation, allowing children to remain calm enough to learn effective problem solving strategies, including the ability to identify the source of the problem, consider multiple possible solutions, evaluate possible outcomes, and choose the solution that will maximize positive consequences (Crick & Dodge, 1994).

When children lack these basic social skills, they are more likely to exhibit both externalizing problems, such as aggressive and oppositional behaviour, and internalizing problems, such as anxiety and depression (Fine, Izard, Mostow, Trentacosta, & Acerman, 2003; Schultz, Izard, Ackerman, & Youngstrom, 2001). Young children who have above-average behaviour problems tend to have below-average social skills (Bierman & Welsh, 1997). This combination of behaviour problems and deficits in social skills increases the likelihood that children will struggle in school, both socially and academically (Alexander, Entwisle, & Dauber, 1993; Gagnon, Craig, Tremblay, Zhou, & Vitaro, 1995; O'Neil, Welsh, Parke, Wang, & Strand, 1997).

One of the central goals of preschool education is to teach children to control their behaviour, inhibit negative impulses, follow classroom rules, and get along with classmates (Campbell & von Stauffenberg, 2008; Kellam, Rebok, Ialongo, & Mayer, 1994). There is clear evidence that children can learn these skills, given the proper context. However, that learning is most efficient for young children when personalities are most malleable and before self-perpetuating negative cycles resulting from behaviour problems have become calcified (Cefai & Cavioni, 2014; Domitrovich, Cortes, & Greenberg, 2007; Weare & Nind, 2011).

High-Quality Preschool Education

During the last few decades, practitioners and researchers have been trying to identify the crucial components of effective preschool prevention programs. There is growing recognition that a high-quality preschool education must promote not only cognitive development and academic learning, but also social-emotional skills (Anthony, Anthony, Morrel, & Acosta, 2005).

Many studies suggest that exposure to high-quality preschool education has positive effects on cognitive and social development, attention, reading and math skills, and educational success that last into adolescence and adulthood (Gormley, Phillips, Newmark, Welti, & Adelstein, 2011; Huang, Invernizzi, & Drake, 2012; Magnuson, Ruhm, & Waldfogel, 2007; Manning, Homel, & Smith, 2010; Schweinhart et al., 2005). The possibility that high-quality preschool can have lasting benefits is evident from model preschool programs in the United States, such as Abecedarian and High/Scope Perry Preschool, which improved high school graduation rates and adult employment (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Schweinhart et al., 2005). This possibility is also evident from more universal preschool programs, like the federally-funded Head Start preschool program for children living in poverty in the United States. Children who attended Head Start, compared to their siblings who did not attend Head Start, exhibited better well-being in young adulthood, as reflected in a summary index comprising high school graduation, college attendance, unemployment, crime, adolescent parenthood, single-parent status, and physical health (Deming, 2009).

Recently, there has been a surge in interest in creating, implementing, and rigorously evaluating early learning programs to promote children's social-emotional skills and reduce the likelihood of behaviour problems (Clayton, Ballif-Spanvill, & Hunsaker, 2001; Wilson, Lipsey, & Derzon, 2003). Substantial evidence documents the ability of universal preventive interventions to improve children's social and emotional competencies (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Greenberg, Domitrovich, & Bumbarger, 2001; Weissberg & Greenberg, 1998). A synthesis of 213 field trials indicates that social and emotional learning programs improve children's attitudes towards school, academic achievement and positive social behaviour, while also reducing their conduct problems and emotional distress (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

Preschool PATHS (Promoting Alternative Thinking Strategies) (Domitrovich, Cortes, & Greenberg, 2007) is one of those social and emotional learning programs that is accumulating considerable evidence of its effectiveness. In one randomized controlled study in the United States, the Preschool PATHS curriculum produced positive effects on children's social and emotional competencies, including emotion regulation (Domitrovich et al., 2007). In another randomized controlled study in the United States, the combination of Preschool PATHS and an integrated emergent literacy curriculum has altered children's developmental trajectories of social-emotional functioning over five years (Nix et al., 2016). More recently, a third randomized controlled trial in the United States has demonstrated that Preschool PATHS improved children's emotion knowledge, problem solving skills, and prosocial behaviour (Morris, Mattera, Castells, Bierman, & Raver, 2014).

The Present Study: Enhancing Preschool Education in Croatia

Since 1997, preschool education has been part of the larger education system in Croatia. Preschool education is available to all children through age 6, when they begin elementary school. Children are enrolled in preschool programs that are either 5 or 10 hours per day. About 58% of children attend preschool; however, during the final year of preschool, prior to the start of elementary school, almost all children attend

a preschool program. To date, there is virtually no research on the quality of care provided in preschool programs in Croatia.

This study comprises the first attempt to deliver and evaluate an empirically-validated social and emotional learning program, Preschool PATHS, within preschool education settings in Croatia. The study assessed changes in children's social and emotional competencies across the year. It was anticipated that Preschool PATHS would help teach children to increase their positive behaviours, such as emotion regulation, and decrease their negative behaviours, such as peer problems.

Method

The study was conducted within a larger research project, 'Implementation of Evidence-Based Prevention Programs Focused on Social and Emotional Learning through Scientific Evaluation and Application in Croatian Schools and Kindergartens.' The project was financed by the Ministry of Science, Education and Sports of the Republic of Croatia, the Unity through Knowledge Fund of the World Bank, and local governments. The project was led by the University of Zagreb, in collaboration with Pennsylvania State University in the United States.

Participants

This study included 182 children, ages 3 to 6, at the beginning of the preschool year, and 171 children at the end of the preschool year. There were 164 children who were in the same classroom at both times who could be included in data analyses. About 45% of children were girls, and 55% were boys. Virtually all children were white. About 92% of children lived in two-parent families.

To enhance their representativeness, children attended preschools in Zagreb, the capital and most populated city in Croatia; in Primorsko-goranska, a harbour community; or Istria, a more rural and coastal region in the northern part of the country. This study included two preschool classrooms within two schools in each of the three study sites. Prior to participating in this study, no formal social and emotional learning curricula were being implemented in any of the preschool classrooms.

Intervention Curriculum

Preschool PATHS is a comprehensive curriculum intended to enhance children's social and emotional competencies and prevent or reduce behaviour and emotional problems in young children and (Domitrovich et al., 2007). It is based on the Affective-Behavioural-Cognitive-Dynamic model of development (Greenberg & Kusche, 1993; Greenberg, Kusche, & Speltz, 1991). This model posits that it is the effective integration of affect, behaviour, and cognitive understanding that underlies true social and emotional competencies. PATHS posits that children's adaptation depends on both their own skill level as well as the social milieu in which they live (Cicchetti & Toth, 1997; Domitrovich et al., 2007).

The PATHS curriculum consists of several thematic units that include lessons on social skills such as giving and receiving compliments, basic and advanced feelings, problem solving, and a revised version of the 'Turtle Technique' (Robin, Schneider, & Dolnick, 1976). The 'Turtle Technique' teaches children how to

momentarily withdraw from a challenging interaction as if they were turtles and tucking in to their shells. The children are then instructed to take deep breaths to calm down and to state how they feel and what they need.

There are five primary objectives of the PATHS curriculum: develop children's awareness and communication skills regarding emotions; teach self-control of arousal and behaviour; enhance self-esteem and positive peer relationships; promote problem-solving skills by fostering the integration of children's self-control, affect recognition, and communication skills; and create a positive classroom atmosphere that supports social and emotional learning. Teachers use complementary pedagogic strategies to create a positive classroom environment that supports the development of social and emotional competencies and relationships.

Teachers were expected to conduct 37 30-minute PATHS lessons, about two per week, during the fall, winter, and early spring of the preschool year. The curriculum also included formal and informal extension activities that were designed to help children generalize the core concepts presented in the lessons and create additional opportunities for social and emotional learning throughout the day. For this study, there were no content changes made to the original Preschool PATHS curriculum, aside from being translated into Croatian.

Before starting Preschool PATHS, teachers completed two days of training, led by certified instructors from the United States. During program implementation, preschool counsellors supervised each teacher, visiting classrooms, observing how PATHS lessons were conducted and how program content was used at other appropriate times during the school day, and providing constructive feedback.

Measures

Teachers completed the same battery of pre- and post-intervention ratings in September and April of the preschool year. This study relied on ratings of seven child behaviours.

Prosocial behaviour. Prosocial behaviour was assessed with six items from the Social Competence Scale (http://www.fasttrackproject.org/techrept/s/sct/). Sample items were 'Shares with others' and 'Is helpful to others.' Teachers used a six-point Likert scale, with response options ranging from 'almost never' to 'almost always,' to rate all items (α = .90).

Emotion regulation. Emotion regulation was assessed with seven items, also from the Social Competence Scale. Sample items were 'Controls temper when there is a disagreement' and 'Accepts things not going her/his way.' Again, teachers used a six-point Likert scale, with response options ranging from 'almost never' to 'almost always,' to rate all items (α = .87).

Emotion symptoms. Emotion symptoms were assessed with five items from the Strengths and Difficulties Questionnaire (Goodman, 1997). Sample items were 'Worries much, or often seems worried.' and 'Often unhappy, depressed or tearful.' Teachers used a three-point Likert scale, with response options ranging from 'not true' to 'certainly true,' to rate all items (α = .79).

Peer problems. Peer problems were assessed with five items from the Peer Problems subscale of the Strengths and Difficulties Questionnaire (Goodman, 1997). Sample items were 'Picked on or bullied by other

children.' and 'Would rather be alone than with other children.' Once again, teachers used a three-point Likert scale, with response options ranging from 'not true' to 'certainly true,' to rate all items (α = .67).

Relational Aggression. Relational aggression was assessed with six items from the Children's Social Behavior Scale – Teacher Report (Crick & Grotpeter, 1995). Sample items were 'This child spreads rumors or gossip about some peers.' and 'When mad at a peer, this child ignores the peer or stops talking to the peer.' Teachers used a six-point Likert scale, with response options ranging from 'almost never' to 'almost always,' to rate all items (α = .95).

Conduct Problems. Conduct problems were assessed with five items from the Strengths and Difficulties Questionnaire (Goodman, 1997). Sample items were 'Often loses temper' and 'Often fights with other children or bullies them.' Teachers used a three-point Likert scale, with response options ranging from 'not true' to 'certainly true,' to rate all items (α = .81).

Hyperactive-Impulsive Behaviour. Hyperactive-impulsive behaviour was assessed with eight items from the Hyperactive-Impulsive subscale of the ADHD Rating Scale (DuPaul, 1991). Sample items were 'Has trouble waiting her/his turn.' and 'Does physically dangerous things without thinking.' Teachers used a four-point Likert scale, with response options ranging from 'not at all' to 'very much,' to rate all items (α = .94).

Results

The means and standard deviations for all outcomes included in this study are presented in Table I. As expected for a typical school context, children tended to receive relatively high scores for the positive behaviours, such as emotion regulation, and relatively low scores for the negative behaviours, such as peer problems. However, there were not clear ceiling or floor effects for any of the behaviours. Across the board, the means for the positive behaviours increased from the beginning to the end of the preschool year, and the means for the negative behaviours decreased over time.

The correlations between study outcomes are presented in Table II. As expected from multiple measures of child functioning assessed by the same informant (e.g., the children's teachers), these correlations revealed substantial overlap among similar constructs. However, there was clear differentiation among theoretically dissimilar constructs, such as emotional symptoms and hyperactive-impulsive behaviour.

Change Over Time among children in Preschool PATHS

Change over time was examined among the 164 children (90% of original sample) who had complete data at the pre-intervention assessment and again at the post-intervention assessment. In these analyses, change scores were computed for each child by subtracting the pre-intervention assessment of each outcome from the post-intervention assessment of the same outcome. In non-experimental studies like this one, the use of change scores can greatly enhance the ability to make causal inferences (Allison, 1990).

Table I. Means and Standard Deviations of Study Outcomes

	Pre-Intervention		Post-Intervention		Change Over Time	
	Mean	SD	Mean	SD	Mean	SD
Prosocial Behaviour	4.20	1.12	5.06	1.00	.85	1.05
Emotion Regulation	4.00	1.04	4.79	.98	.79	.96
Emotional Symptoms	1.34	.40	1.19	.29	-.14	.34
Peer Problems	1.58	.91	1.29	.63	-.28	.82
Relational Aggression	1.83	1.00	1.33	.63	-.50	.90
Conduct Problems	1.26	.40	1.13	.30	-.13	.31
Hyperactive-Impulsive	1.57	.73	1.38	.56	-.19	.56

Table II. Correlations among Study Variables

	1	2	3	4	5	6
1. Prosocial Behaviour						
2. Emotion Regulation	.73					
3. Emotion Symptoms	-.25	-.38				
4. Peer Problems	-.61	-.45	.28			
5. Relational Aggression	-.40	-.53	.12	.38		
6. Conduct Problems	-.65	-.49	.14	.68	.57	
7. Hyperactive-Impulsive	-.60	-.44	.08	.54	.43	.70

Note. All correlations with an absolute value greater than .14 are statistically significant, $p < .05$.

These change scores were then used as the dependent variables in hierarchical linear models (Raudenbush & Bryk, 2002), which controlled for the nesting of children within classrooms. The hierarchical linear models revealed whether the change score for each outcome was in the correct direction. Ideally, change scores for the positive behaviours, such as emotion regulation, would be positive, indicating an increase in the prevalence of the desirable outcome over the preschool year, whereas change scores for the negative behaviours, such as peer problems, would be negative, indicating a reduction in levels of the undesirable outcome over the preschool year. The hierarchical linear models can reveal whether each change score was statistically significantly different than zero. In addition, the hierarchical linear models can reveal the intra-class correlation coefficient (ICC), and whether the ICC is statistically significantly different than zero. The ICC represents the proportion of the total variance in those change scores that is accounted for by classroom effects. The quality of the interpersonal dynamics that emerged within each classroom over the course of the year as well as the idiosyncratic ways in which teachers perceived and rated their children would influence these classroom effects.

To create a common metric so that the magnitude of change could be compared across outcomes, effect sizes, Cohen's d, were computed (Cohen, 1977). These effect sizes represent the difference between the scores of the pre- and post-intervention assessments of each outcome, divided by the standard deviation of the outcome. As such, the effect sizes represent change as a proportion of a standard deviation. For example, an effect size of .50 would indicate that, on average, children improved by one-half of one standard deviation over the course of the year.

The results of these analyses revealed change scores that were statistically significant for six of the seven outcomes and marginally statistically significant for the remaining outcome, even when controlling for classroom effects. The change score for prosocial behaviours was .85, $p < .001$, $d = .81$; ICC = .27, $p = < .05$. These values indicate that children changed by just over eight-tenths of one standard deviation during the preschool year, while they participated in Preschool PATHS. This finding was statistically significant even controlling for the rather large classroom effect. The change score for emotion regulation was .79, $p < .001$, $d = .82$; ICC = .17, $p < .10$. The change score for emotional symptoms was -.14, $p < .0001$, $d = .41$; ICC = .02, $p = ns$. The change score for peer problems was -.28, $p < .05$, $d = .34$; ICC = .10, $p < .10$. The change score for relational aggression was -.50, $p < .0001$, $d = .56$; ICC = .06, $p = ns$. The change score for conduct problems was -.13, $p < .0001$, $d = .42$; ICC = .05, $p = ns$. The change score for hyperactive-impulsive behaviour was -.19, $p < .10$, $d = .34$; ICC = .23, $p = < 05$.

Discussion

This study sought to assess changes in social and emotional competencies among the first children in Croatia to participate in the evidence-based Preschool PATHS curriculum. Even controlling for classroom and teacher effects, the study found substantial improvements in children's prosocial behaviour, emotion regulation, emotional symptoms, peer problems, relational aggression, conduct problems, and hyperactive-impulsive behaviour across one year in preschool. The magnitude of these changes in terms of effect sizes ranged from .34 to .82, representing about one-third of a standard deviation to about eight-tenths of a standard deviation. The magnitude of the changes in emotional symptoms, peer problems, conduct problems, and hyperactive-impulsive behaviour would be considered small to medium in size (Cohen, 1977). The magnitude of the change in relational aggression would be considered medium in size, and the magnitude of the changes in prosocial behaviour and emotion regulation would be considered large in size (Cohen, 1977).

This study highlights the rapid changes in social and emotional competencies that can occur in preschool. The foundations of brain structure, and subsequent lifelong potential, are established in children's early years, when development is likely to be most sensitive to context. The growth and environmentally-based pruning of neuronal systems in the first years of life support a range of early cognitive and academic skills, executive functions, attention, persistence, self-regulation, and social-emotional functioning (Harvard Center on the Developing Child, 2007). Because skill acquisition is self-perpetuating and cumulative, investment in early learning and development may be more efficient and may generate more benefits, relative to investments later in life (Camilli, Vargas, Ryan, & Barnett, 2010; Duncan et al., 2007; Heckman, 2006).

Given how rapidly children are changing during this period, preschool programs, like Preschool PATHS, can have a disproportionately strong impact on development, affecting children's social-emotional learning in both formal and informal ways (Denham & Burton, 2003; Pianta & Stuhlman, 2004). For that reason, it is critical that preschool teachers be given all of the resources necessary to ensure this impact is positive. Preschool social and emotional learning programs, such as Preschool PATHS, can be effective in improving academic performance, increasing positive social behaviour, reducing conduct problems and emotional distress (CASEL, 2013). Teachers may help children learn such skills through explicit curriculum materials and pedagogic practices as well as by modelling the skills themselves and setting up classroom practices that provide multiple opportunities for skill practice and refinement (Cohen, 2006; Durlak et al., 2011; Weare & Nind, 2011; Zins, Weissberg, Wang, & Walberg, 2004). Studies have found that training teachers to provide warm support and effective non-punitive classroom management has positive effects on children's prosocial behaviour and reduced aggression (Webster-Stratton, Reid & Hammond, 2004). In addition, explicit social and emotional learning and emotion-coaching curricula enhance the skill development of the child (Lynch, Geller & Schmidt, 2004).

In Croatia, as in many other countries, it appears that preschool teachers are especially receptive to universal prevention programs, like Preschool PATHS, that promote children's social and emotional competencies. Preschool teachers are not under as much pressure as other teachers to increase academic skills, and preschool teachers recognize the developmental appropriateness of focusing on social and emotional competencies. In addition, the working conditions of many preschool teachers offer more opportunities to be flexible and innovative with regard to the techniques and methods they use to develop children's skills involving social and emotional competencies.

The substantial improvements in social and emotional competencies that were documented in this study are especially noteworthy because of where they occurred. In Croatia, over 20% of children report being recent victims of bullying by peers, and 10% report being the victim of repeated violence by peers (Pregrad, 2007). About 59% of adolescent boys and 48% of adolescent girls engage in binge drinking, placing Croatia third highest among all European countries (Kuzman et al., 2011). There is a great need to improve children's social and emotional competencies in this nation.

Croatia has taken steps to raise the quality of preschool education by adopting a National Curriculum for Early Childhood Education and Care (Croatian Official Gazette No 5/2015). The curriculum signals a formal readiness to invest in high quality preschool programs, including recognition of the importance of promoting social and emotional learning. However, in practice, efforts around social and emotional learning are still fragmented and depend on each preschool teacher's individual readiness and capacities to promote these skills. Social and emotional learning is still not intentional enough, but rather incidental or spontaneous. There are still no structured, comprehensive, evidence-based social and emotional learning programs which can be sustainably delivered to all children. Studies like this one, in which ambitious, rigorous, and empirically-validated social and emotional learning curricula are implemented and evaluated in Croatia, propel preschool education forward. Croatia is currently preparing the third reform of its educational system,

led by the Croatian Ministry of Science, Education and Sports. Consensus is growing regarding the need to promote both academic success and social and emotional well-being.

Limitations

This study examines the first time an empirically-validated social and emotional learning curriculum was implemented in Croatian preschool settings. However, several factors qualify the conclusions that can be drawn from this study.

Most importantly, this study did not include a comparison group of Croatian children who did not participate in Preschool PATHS. Without such a comparison group, it is impossible to determine whether the substantial improvements in children's social and emotional competencies over the year were the result of simple developmental maturation, the provision of Preschool PATHS, or a combination of both factors. In a previous study using several measures included in this study, there were virtually no changes in outcome scores from year to year (Nix et al., 2016). It is unlikely that children remained stable in their social-emotional skills; rather, the lack of change in outcome scores is probably a consequence of the nature of the response options. When behaviours are rated on Likert scales with descriptive anchors such as 'almost never' to 'almost always,' 'not true' to 'certainly true,' or 'not at all' to 'very much,' teachers most likely adjust their ratings and loosely rank children, based on evolving expectations for what is and is not appropriate behaviour as children mature. This is why in measures, such as the Strengths and Difficulties Questionnaire, the same raw scores across wide age brackets correspond to the same percentile scores (http://sdqinfo.org/g0.html). If teachers were not naturally adjusting their own scores based on evolving expectations, younger children always would receive higher percentiles for problem behaviours than older children. This stability in raw scores that is typically observed in longitudinal studies suggests that the changes in scores observed in this study reflect the impact of Preschool PATHS. However, without a comparison group of children who did not participate in Preschool PATHS, it is impossible to make such a conclusion with certainty. Based on the positive results of this pilot study, there is merit in conducting a full randomized controlled trial of Preschool PATHS in Croatia in the future.

A second limitation of this study is that the teachers who completed the ratings of children's social and emotional competencies at the beginning and end of the preschool year are the same teachers who implemented Preschool PATHS. In part, the changes in children's skills may reflect positive shifts in the ways teachers perceive the children in their classrooms as a result of the curriculum.

A third limitation of this study is that all outcomes were based on teacher reports. Direct observations of children's social and emotional competencies would have been preferable. This limitation also should be addressed in future research.

Conclusion

In Croatia, as in many parts of the world, children are growing up in communities that are changing rapidly. Many risk factors for adverse outcomes are increasing while traditional community protective mechanisms are weakening (Collishaw, Maughan, Goodman, & Pickles, 2004; Layard & Dunn, 2009;

Palmer, 2006). To successfully navigate those challenges, children will need highly-developed and refined social and emotional competencies. Such competencies develop rapidly during the preschool period. This study suggests that the implementation of a social and emotional learning curriculum, such as Preschool PATHS, can accelerate that growth in social and emotional competencies.

Acknowledgments

References

Alexander, K. L., Entwisle, D. R., & Dauber, S. L. (1993). First grade classroom behaviour: Its short and long-term consequences for school performance. *Child Development*, *64,* 801–814.

Allison, P. D. (1990). Change scores as dependent variables in regression analysis. *Sociological Methodology*, *20*, 93 – 114.

Anthony, B. J., Anthony, L. G., Morrel, T. M., & Acosta, M. (2005). Evidence for social and behaviour problems in low-income, urban pre-schoolers: Effects of site, classroom, and teacher. *Journal of Youth and Adolescence, 34*, 31–39.

Bierman, K. L., & Welsh, J. A. (1997). Social relationship deficits. In E. J. Mash & L. G. Terdal (Eds.), *Assessment of childhood disorders* (3rd ed) (pp. 328–365). New York: Guilford Press.

Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist*, *57,* 111–127.

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *The Teachers College Record*, 112 (3).

Campbell, F. A., Ramey, C. T., Pungello, E. P., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science*, *6*, 42 – 57.

Campbell, S. B., & von Stauffenberg, C. (2008). Child characteristics and family processes that predict behavioural readiness for school. In A. Crouter, & A. Booth (Eds.), Early disparities in school readiness: How families contribute to transitions into school (pp. 225–258). Mahwah, NJ: Erlbaum.

CASEL — Collaborative for Academic, Social, and Emotional Learning. (2013). *Implementing systemic district and school social and emotional learning.* Chicago, IL: Author.

Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. C., & Hawkins, J. D. (2002). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Prevention & Treatment*, *5*(1, article 15). Retrieved on 4th June 2016 from: http://journals.apa.org/prevention/volume5/pre0050015a.html.

Cefai, C. & Cavioni, V. (2014). Social and emotional education in primary school: integrating theory and research into practice. London: Springer.

Cicchetti, D., & Toth, S. L. (1997). Transactional ecological systems in developmental psychopathology. In S. S. Luthar, J. A. Burack, D. Cicchetti,&J. R.Weisz (Eds.), *Developmental psychopathology: Perspectives on adjustment, risk, and disorder* (pp. 317–349). New York: Cambridge University Press.

Clayton, C. J., Ballif-Spanvill, B., & Hunsaker, M. D. (2001). Preventing violence and teaching peace: A review of promising and effective antiviolence, conflict-resolution, and peace programs for elementary school children. *Applied and Preventive Psychology,10*(1), 1-35.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences.* Routledge.

Cohen, J. (2006). Social, emotional, ethical, and academic education: Creating a climate for learning, participation in democracy, and well-being. *Harvard Educational Review, 76,* 201-237.

Collishaw, S., Maughan, B., Goodman, R., & Pickles, A. (2004). Time trends in adolescent mental health. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 45*(8), 1350-1362.

Coolahan K., Fantuzzo J., Mendez J., & McDermott P. (2000). Preschool peer interactions and readiness to learn: Relationships between classroom peer play and learning behaviours and conduct. *Journal of Educational Psychology. 92*, 458–465.

Crick, N. R., & Dodge, K.A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74–101.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development*, 66, 710 – 722.

Deming, D. (2009). Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start. *American Economic Journal: Applied Economics,1* (3), 111-34.

Denham, S. A. (1998). *Emotional development in young children*. New York: Guilford Press.

Denham, S. A.M., & Burton, R. (2003). *Social and emotional prevention and intervention programming for preschoolers*. New York: Kluwer-Plenum.

Domitrovich, C. E., Cortes, R. C., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool "PATHS" curriculum. *The Journal of Primary Prevention, 28*(2), 67-91.

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

DuPaul, G. (1991). Parent and teacher ratings of ADHD symptoms: Psychometric properties in a community-based sample. *Journal of Clinical Child Psychology*, 20, 245 – 253.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432

Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T. , Haynes, N. M., Kessler, R., Schwab-Stone, M. E., & Shriver, T. P. (1997). *Promoting social and emotional learning: Guidelines for educators*. Alexandria, VA: Association for Supervision and Curriculum Development.

Fine, S. E., Izard, C. E., Mostow, A. J., Trentacosta, C. J., & Ackerman, B. P. (2003). First grade emotion knowledge as a predictor of fifth grade self-reported internalizing behaviours in children from economically disadvantaged families. *Development and Psychopathology*, *15,* 331–342.

Gagnon, C., Craig, W. M., Tremblay, R. E., Zhou, R. M., & Vitaro, F. (1995). Kindergarten predictors of boys' stable behaviour problems at the end of elementary school. *Journal of Abnormal Child Psychology*, *23*(6), 751–766.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*, 581 – 586.

Gormley, W. T., Phillips, D. A., Newmark, K., Welti, K., & Adelstein, S. (2011). Social emotional effects of early childhood education programs in Tulsa. *Child Development,82*, 2095–2109.

Greenberg, M. T., & Kusche, C. A. (1993). *Promoting social and emotional development in deaf children: The PATHS Project*. Seattle: University of Washington Press.

Greenberg, M. T., Domitrovich, C., & Bumbarger, B. (2001). The prevention of mental disorders in school-aged children: Current state of the field. *Prevention & Treatment, 4*, 1-59

Greenberg, M. T., Kusche, C. A., & Speltz, M. (1991). Emotion regulation, self-control, and psychopathology. In D. Cicchetti & S. Toth (Eds.), *Internalizing and externalizing expressions of dysfunction. Rochester Symposium on Developmental Psychopathology*, Vol. 2 (pp. 21–55). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Harvard Center on the Developing Child (2007). *The Science of Early Childhood Development*. Retrieved on 19th March 2016 from: www.developingchild.harvard.edu.

Heckman, J., J. (2006). Skill Formation and the Economics of Investing in Disadvantaged Children. *Science, 312,* 5782, 1900-1902.

Huang, F. L., Invernizzi, M. A., & Drake, E. A. (2012). The differential effects of preschool: Evidence from Virginia. *Early Childhood Research Quarterly, 33*(1),33–45.

Kellam, S. G., Rebok, G. W., Ialongo, N. S.,& Mayer, L. S. (1994). The course and malleability of aggressive behaviour from early first grade into middle school: Results of a developmental epidemiology-based preventive trial. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 35*, 259–281.

Kuzman, M., Pejnović Franelić, I., Pavić Šimetin, I. & Pejak, M. (2011). *Europskoistraživanje o pušenju, alkoholu i drogama među učenicima: Izvješće za RepublikuHrvatsku i Grad Zagreb*. Zagreb: Hrvatski zavod za javno zdravstvo i Grad Zagreb: Gradski ured za zdravstvo, rad, socijalnu zaštitu.

Layard, R., & Dunn, J. (2009). *A Good Childhood*. London: Penguin.

Lynch, K.B., Geller, S.R., & Schmidt, M.G. (2004). Multi-year evaluation of the effectiveness of a resilience-based prevention program for young children. *The Journal of Primary Prevention, 24*, 335–353.

Magnuson, K. A., Ruhm, C., & Walfogel, J. (2007). Does prekindergarten improve school preparation and performance? *Economics of Education Review, 26*, 33–51.

Manning, M., Homel, R., & Smith, C. (2010). A meta-analysis of the effects of early developmental prevention programs in at-risk populations on non-health outcomes in adolescence. *Children and Youth Services Review, 32*, 506–519.

Ministry of Science, Education and Sports of the Republic of Croatia, Retrieved on 5th April 2016 from: http://public.mzos.hr/Default.aspx?sec=2498

Morris, P., Mattera, S. K., Castells, N., Bangser, M., Bierman, K. B., & Raver, C. (2014). *Impact findings from the head start cares demonstration: National evaluation of three approaches to improving preschoolers' social and emotional competence.* OPRE Report 2014-44. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

National curriculum for early childhood education and care (2015). Croatian Official Gazette No 5/2015

Nix, R. L., Bierman, K. L., Heinrichs, B. S., Gest, S. D., Welsh, J. A., & Domitrovich, C. E. (2016). The randomized controlled trial of Head Start REDI: Sustained effects on developmental trajectories of social-emotional functioning. *Journal of Consulting and Clinical Psychology*, *84*, 310-322.

O'Neil, R., Welsh, M., Parke, R. D., Wang, S., & Strand, C. (1997). A longitudinal assessment of the academic correlates of early peer acceptance and rejection. *Journal of Clinical Child Psychology, 26,* 290–303.

Palmer, S. (2006). *Toxic childhood: How the modern world is damaging our children and what we can do about it*. London: Orion.

Pianta, R. C., & Stuhlman, M. W. (2004). Teacher-child relationships and children's success in the first years of school. *School Psychology Review*. *33*, 444–458.

Pregrad, J. (2007). *Priručnik Projekt za sigurno i poticajno okruženje u školama – prevencija i borba protiv nasilja među djecom*. Zagreb: Ured UNICEF-a za Hrvatsku.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.

Raver, C. C., Blackburn, E. K., Bancroft, M., & Torp, N. (1999). Relations between effective emotional self-regulation, attentional control, and low-income preschoolers' social competence with peers. *Early Education & Development*, *10*(3), 333–350.

Robin, A. L., Schneider, M., & Dolnick, M. (1976). The Turtle Technique: An extended case study of self-control in the classroom. *Psychology in the Schools*, *13,* 449–453.

Rudolph, K. D., & Heller, T. l. (1997). Interpersonal problem solving, external behaviour, and social competence in preschoolers: A knowledge-performance discrepancy? *Journal of Applied Developmental Psychology*, *18,* 107–118.

Saarni, C. (1999). *The development of emotional competence*. New York: Guilford Press.

Schultz, D., Izard, C. E., Ackerman, B. P., & Youngstrom, E. A. (2001). Emotion knowledge in economically disadvantaged children: Self-regulatory antecedents and relations to social difficulties and withdrawal. *Development & Psychopathology*, *13,* 53–67.

Schweinhart, L. J., Montie, J., Xiang, Z., Barnett, W. S., Belfield, C. R., & Nores, M. (2005).*Lifetime effects: The High/Scope Perry Preschool study through age 40*. Ypsilanti, MI: High/Scope Press.

Social Competence Scale. Retrieved on 10th April 2016 from: http://www.fasttrackproject.org/techrept/s/sct/

Weare, K. & Nind, M. (2011) Mental health promotion and problem prevention in schools: What does the evidence say? *Health Promotion International, Special Issue Vol. 26*, 29-56.

Webster-Stratton, C., Reid, M. J., & Hammond, M. (2004). Treating children with early-onset conduct problems: Intervention outcomes for parent, child, and teacher training. *Journal of Clinical Child and Adolescent Psychology, 33*(1), 105-124.

Weissberg, R. P., & Greenberg, M. T. (1998). School and community competence-enhancement and prevention programs. In I. Siegel & A. Renninger (Vol. Eds.), *Handbook of child psychology:Vol. 4. Child psychology in practice* (5th ed.). New York: J. Wiley

Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). Effectiveness of school-based intervention program on aggressive behaviour: A meta-analysis. *Journal of Consulting and Clinical Psychology, 71*, 136–149.

Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (2004). *Building academic success on social and emotional learning.* New York: Teachers College Press.