

## Effects of positive youth development programs on school, family, and community systems

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**Abstract** A review of efforts at social system change in 526 universal competence-promotion outcome studies indicated that 64% of the interventions attempted some type of microsystemic or mesosystemic change involving schools, families, or community-based organizations in an attempt to foster developmental competencies in children and adolescents. Only 24% of the reports provided quantitative data on the change that occurred in targeted systems. However, studies containing the necessary information produced several mean effect sizes that were statistically significant, and ranged from modest to large in magnitude. These data indicate that attempts to change social systems affecting children and adolescents can be successful. Future work should measure more thoroughly the extent to which the systemic changes that are targeted through intervention are achieved, and investigate how such changes contribute to

the development and sustainability of the outcomes that might be demonstrated by participants of competence-promotion programs.

**Keywords** Meta-analysis · Positive youth development · Prevention · Promotion · Systems · Youth

### Introduction

The purpose of this article is to provide information on efforts at social system change that have occurred in positive youth development (PYD) programs. Our review of controlled outcome research yields data on which aspects of social systems are targeted in interventions, the extent of researchers' attempts to measure changes that may have occurred in different systems, and the results that were obtained at the systemic level. We also discuss issues involved in assessing the impact of systemic change efforts and suggest some directions for future work.

As used in this special issue, systems change refers to “change efforts that strive to shift the underlying infrastructure within a community or targeted context to support a desired outcome, including shifting existing policies and practices, resource allocations, relational structures, community norms and values, and skills and attitudes” (Foster-Fishman, 2000). PYD is a good area for a review because current theories stress the importance of system change. The following sections first describe the core elements of the PYD approach and then present a conceptual framework for understanding PYD outcome research that incorporates competence-promotion strategies.

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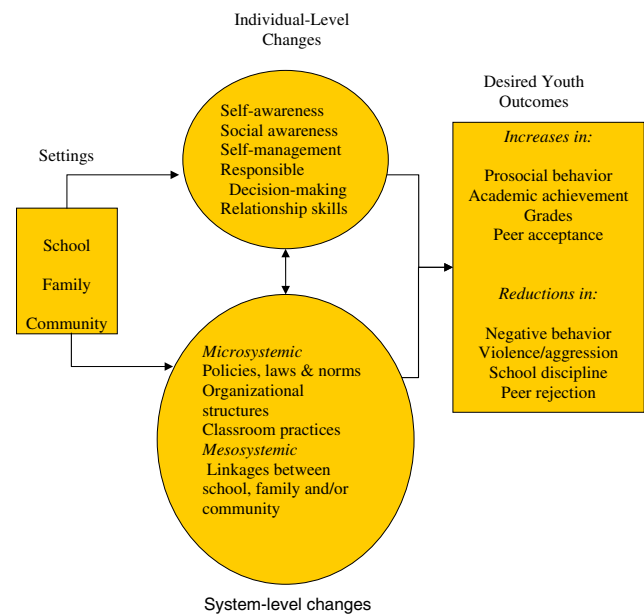
## Positive youth development

In general, PYD seeks to promote the variety of developmental competencies that young people need to become productive, contributing members of society. Instead of a pathological focus, PYD emphasizes the strengths, resources, and potential of young people, and, as a result, holds positive expectations regarding the contributions youth can make to society and to their immediate environments. PYD also adopts a holistic view of development giving attention to youths' physical, personal, social, emotional, intellectual, and spiritual development. Finally, PYD stresses that interventions should be conducted with considerations of individual choice, values, and culture in mind. Therefore, some interventions are culturally tailored for a particular target population or are otherwise modified to suit the needs and preferences of participants (Commission on Positive Youth Development, 2005; National Research Council & Institute of Medicine, 2002; Pittman, Irby, Tolman, Yohalem, & Ferber, 2003; Roth & Brooks-Gunn, 2003).

Narrative and meta-analytic reviews lend empirical support for more research and practice in PYD. Many interventions have been able to improve children's social and emotional competencies, increase their prosocial behaviors, and, in some cases, reduce levels of negative behaviors at home, in school, or in the local community (Catalano, Berglund, Ryan, Lonczak & Hawkins, 2002; Durlak & Weissberg, 2005, 2007; Weissberg, Durlak, Taylor, Dynmicki & O'Brien, submitted; Weissberg & Greenberg, 1998). Nevertheless, PYD is a young science, with over 65% of controlled outcome studies appearing since 1990 (Durlak & Weissberg, 2005).

Because the PYD literature has so quickly evolved, there is the need for a conceptual framework that can guide research and practice. Our work concentrates on how the promotion of personal and social competencies and efforts at social system change result in desired youth outcomes, and our conceptual framework is presented in Fig. 1. The framework has three major parts that emphasize: (a) the settings for interventions, (b) the intervention focus in terms of individual- or systems-level change, and, finally, (c) the types of outcomes to consider.

First, interventions typically occur in three different contexts, school, family, and community; and these distinctions are important for assessing outcomes, as interventions vary in their scope and goals across these contexts. Second, the first desired outcome of PYD interventions is enhanced social and emotional competencies that are, in turn, mediators of subsequent changes in later behavior and functioning. That is, not only is the promotion of social and emotional competencies a worthy objective in and of itself, but also these new competencies should



**Fig. 1** Conceptual framework illustrating how the promotion of competencies at the individual-level and system-level changes lead to desired youth development outcomes

eventually result in a more positive developmental trajectory. The personal and social competencies frequently targeted in programs include self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social, and Emotional Learning, 2003). More specifically, these programs which promote social and emotional learning focus on self-control of behaviors and emotions, self-efficacy, effective coping strategies, perspective taking, empathy, interpersonal problem-solving, conflict resolution, decision making, and positive connections to school, family, and to other adult role models. Depending on the intervention's intent, youth with enhanced social and emotional competencies should do better in school, demonstrate more prosocial behavior, have more effective peer and adult relationships, and show fewer negative outcomes (Greenberg et al. 2003).

Interventions can emphasize individual-level change by working directly with youth to promote different competencies. However, environmental influences and changes must also be considered. It is believed that youth development is optimized in settings that support and reinforce competencies, and provide youth with opportunities to use and generalize their newly learned skills (Collaborative for Academic, Social and Emotional Learning, 2003; Catalano et al., 2002; National Research Council & Institute of Medicine, 2002; Pittman et al., 2003). Essentially, this means that in addition to any direct work with children, interventions should attempt social system change. Unfortunately, youth may not encounter home, family and

community environments that view them positively, treat them respectfully, invite them to contribute meaningful input in matters that affect them, appreciate their talents and potential contributions, or connect them to multiple prosocial adult and peer models (Scales et al., 2001). To provide these types of environments often requires changing the status quo or “rules of the game” (Seidman, 1988), so that the social settings that shape youths’ lives become more conducive to personal growth and development.

There are many different ways to conceptualize social systems and the ecological perspective presented by Bronfenbrenner (1979) is useful in categorizing systemic influences. There are four, complex, interacting, systemic levels that influence individuals. The microsystem includes groups such as families, schools, and various community-based organizations (CBOs); the mesosystem consists of the possible links between microsystems (e.g., family–school partnerships); the exosystem consists of community-level processes such as the available resources and services existing at the neighborhood or local community. Finally, the macrosystem involves broad societal level influences related to such issues as politics, economics, and cultural norms and values. Furthermore, systems at each level of analysis can be comprised of various subsystems. For example, families are complex social systems that contain several subsystems, (e.g., the marital dyad, the sibling subsystem, the parent–child subsystem), and depending on the family, another subsystem involving extended family. Interventions might seek to modify the entire family system or one of its subsystems (e.g., the parent–child subsystem). As Fig. 1 indicates, examples of system change include changing policies, laws, and social norms, modifying organizational practices and routines, and creating positive mesosystemic linkages among school, family and community systems to maximize chances for developmental growth.

Some authors stress that promotion efforts should change social systems in lieu of focusing on individual-level change (Tseng et al., 2002). There is merit in this argument, but the two approaches are not contradictory. It is important to assess which benefits are achieved using which approach, and which benefits are obtained by a combination of strategies. Many PYD programs have worked directly with young people to improve their personal or social competencies, but some also target changes in social systems, which are the focus of this report. In other words, our framework, consistent with others in the field (National Research Council & Institute of Medicine, 2002), views system change as another possible mediator of later outcomes, and one that interacts with changes in youths’ competencies to lead to better later adjustment. An alternate view is a three-stage process in which system

change leads to improved youth competencies, which then lead to better later outcomes.

Finally, it is important to distinguish in our framework among the many different outcomes that may result from intervention. Once again, depending on the program, immediate outcomes may include positive changes appearing in personal, social and academic areas (e.g., better school performance, more prosocial behavior, enhanced life satisfaction), and/or a reduction of negative outcomes in these same areas (less peer rejection, school failure, aggression, or drug use) (see Fig. 1). Authors have noted that the lines between promotion and prevention are blurred in many interventions (Durlak, 2000; Pittman et al., 2003; Weissberg & Greenberg, 1998). Many programs prevent future problems by promoting personal and social skills and, as noted above, some PYD programs have simultaneously increased positive outcomes and reduced negative ones. Assessing both types of outcomes will eventually clarify what programs are useful for achieving what kind of results for what participants.

This study is part of a large meta-analysis on the impact of PYD programs that target children’s personal and social competence (Durlak & Weissberg, 2005). Reviewed studies had to include at least one measure of individual-level change, which was a requirement for the larger review. However, this report focuses on possible changes occurring in social systems, which constitute a second-order level of change. The literature we review focuses on the microsystem, more specifically on schools, families, and CBOs, and mesosystemic processes developing potential connections and interactions among these groups. We elaborate on how these groups or the interactions between groups were targeted for change in the method section. Although broader system influences exist at the exosystem and macrosystem levels involving culture, social norms, and social policies and regulations, they were not the focus of our database.

## Method

The current project was part of a larger review of outcome studies that attempted to promote various social and emotional competencies in children between the ages of 5 and 18 (Durlak & Weissberg, 2005). Studies on physical health promotion including the prevention of pregnancy and HIV/AIDS, and interventions focused exclusively on academic instruction were not included. The initial collection of studies was identified by means of computer searches of *PsychInfo*, *Dissertation Abstracts*, and *Medline*, manual searches of multiple journals, inspection of the reference lists of each relevant report, searches of organization web sites, and letters to researchers presenting at prevention and community conferences.

From this larger data base, universal interventions that targeted youth without any identified adjustment problems ( $n = 526$ ) were selected for review, and the smaller proportion of studies that only involved children or adolescents with mild to moderate problems were excluded (i.e., reports that would be classified as indicated prevention or intervention for early-detected problems). In addition to the above criteria, all included studies had to appear in English by December 31, 2005, contain a control group, and include at least one outcome measure that assessed youths' behaviors in some way (i.e., studies that only assessed changes in attitudes or knowledge were omitted). Because multiple publications can emanate from an intervention, we searched for additional publications by included authors so as not to miss reports focused on social systems aspects of PYD programs.

### Systems-change variables

In general, we defined systemic change as attempts to change the roles, behaviors, and relationships among members of one or more social systems. Typically, this involved efforts: (a) to modify the organizational structure and daily practices of the relevant system or group (e.g., school, family, or CBO); or (b) attempts to forge synergistic links or connections between one or more systems. A coding system was created to identify which aspects of these systems were targeted, if researchers conducted any quantitative assessment of possible changes that occurred in these systems, and the results of their assessment. There were seven coding categories: three related to changes in schools, two referred to families, one to community settings, and one involved attempts to link schools, families, and CBOs.

In school settings, the three categories captured attempted changes through social and emotional learning programs that targeted: (a) school-wide change, (b) changes in classroom organization and routine, or (c) the psychosocial environment of classrooms or entire schools. *School-wide change* involved all (or nearly all) school staff in the intervention. This usually occurred as principals and school staff worked in teams to re-examine different aspects of school policies and routines, assess local needs and resources, develop strategic plans, and initiate and monitor intervention efforts. In some cases, such as Comer's School Program, parents also co-lead some school committees, and local mental health specialists collaborate in the intervention (Cook et al., 1999). School-wide change often leads to shifts in daily organizational practices, and the creation and implementation of new policies and procedures regarding behavioral expectations for students and revised roles for school staff.

Other school interventions sought changes at the classroom level by modifying daily routines and practices. For example, several programs trained teachers in proactive methods of classroom management, which refers to a comprehensive set of strategies for establishing and maintaining an orderly, cooperative, and productive learning environment that fosters appropriate student behavior and investment in learning, and prevents behavioral disruptions (Gettinger, 1988). In other cases, classroom change involved the formation of student work groups for special social projects, or classroom-wide meetings and new procedures addressing special topics such as conflict resolution or bullying (Kenney & Watson, 1996).

Several interventions focused specifically on modifying the *psychosocial environment* by creating a more positive, engaging, and caring school or classroom. Usually, this was attempted through classroom, small group or school-wide events, creating student task groups, or special projects and exercises designed to promote more opportunities for positive student-to-student and teacher-to-student communication and support. In general, the psychosocial environment involves three main dimensions as perceived by their inhabitants: interpersonal relationships, opportunities for personal development, and system maintenance and change. There is growing evidence that students' positive perceptions of these environmental features are associated with a variety of desirable outcomes such as higher self-esteem, better academic performance and educational commitment, and avoidance of risky or unhealthy behaviors (Moos, 1979; Solomon, Battistich, Watson, Schaps, & Lewis, 2000; Zins, Weissberg, Wang, & Walberg, 2004). Coding procedures allowed us to distinguish between interventions attempting to improve the psychosocial environment of an entire school or particular classrooms or school grades (i.e., school-wide versus classroom-level change).

Family-oriented system changes focused on changing *parenting practices* or the overall *family environment*. In the former case, interventions offered training sessions to enhance parents' understanding of normal development, increase their sensitivity to their child's needs, and to improve their childrearing practices, through such tactics as consistency of discipline and limit-setting, increasing the use of praise and attention, and decreasing the use of punishment and criticism. Targeting parenting practices qualifies as system change because it modifies the interactions that occur between parent(s) and child, creates new expectations, norms, and consequences for behavior, and hopefully leads to an improved parent-child relationship. In some cases, the intent was to modify the broader family environment by focusing on such aspects as cohesiveness and problem solving among family members, and the

organization of family routines and general family rules. Often these interventions would include all family members in sessions devoted to these topics.

Systemic interventions in community settings were characterized by forging *connections with prosocial adults*. These connections were attempted predominantly in mentoring studies, but also in some after-school programs, and in a few other community-based settings where adult staff or volunteers led small groups of children in various recreational and social activities. Forging connections between youth and adults (i.e., bonding with adults) emphasizes the relational structures of social systems. Extensive research data support the notion that the existence of trusted adults who can be protectors, advisors, role models and skill-builders can be an important influence at all stages of a young person's development (Catalano et al., 2002; National Research Council & Institute of Medicine, 2002). Positive connections could also occur between youth and teachers or family members, but these were captured in assessments of psychosocial climate at school and measures of the family environment, and so were not separately coded.

Finally, some interventions sought mesosystemic changes by forging links between schools, families, or CBOs. Most often, this was attempted by encouraging more parental involvement in school activities or the activities of CBOs that their children attended. For example, some interventions tried to create family–school partnerships by involving parents actively in school-related activities through parent tutoring at school or home, parent volunteer work at school or during special school events, or parent membership on school governance committees. In other cases, parents were invited to participate actively in their child's after-school program. In a few cases, links between schools and CBOs occurred through such vehicles as the formation of service learning projects whereby community agencies and schools worked together to create and support such interventions. In these projects, students earned academic credit for the service work they did in their local communities. Interventions sought to link microsystems in the belief that modifying more than one system to support youth well-being should be more effective than working within only one system. Studies of academic performance have indicated that parental involvement in their child's school life leads to better school performance (Jeynes, 2005). In addition, other data indicate that the results achieved when families and schools join together to foster student development are greater than if only one of the systems is involved (Durlak, 1997; Weissberg, Kumpfer, & Seligman, 2003).

For the different assessment methods, the source of the data was coded as child, parent, teacher/other school staff, or independent observer. A measure was considered

reliable if its alpha was  $\geq 0.70$ , or if levels of inter-judge agreement for coded data or rater observations was  $\geq 0.80$  for percentage agreement, or  $\geq 0.50$  for kappa. We also noted if authors indicated if their assessment method possessed construct, predictive or discriminant validity.

Interventions in the school and family areas could receive credit for targeting more than one area. For example, a study could receive credit for targeting the classroom setting and the entire school if both of these settings were a focus of the intervention.

#### Effect sizes

To determine the degree to which the targeted social system was actually modified during the intervention, effect sizes were calculated on the relevant outcome measure by subtracting the mean of the control group from the mean of the experimental group at post and dividing by the pooled standard deviation (Hedges & Olkin, 1985). In this way, positive scores are desired because they reflect that system change was occurring to a greater extent for the intervention group compared to controls. When means and standard deviations were not available, methods described by Lipsey and Wilson (2001) were used to calculate effects. Effect sizes were corrected for small sample bias and weighted by the inverse of their variance prior to any analyses as recommended by several meta-analysts (Durlak, Meerson, & Ewell-Foster, 2003; Hedges & Olkin, 1985; Lipsey & Wilson, 2001). When multiple outcomes of the same construct (e.g., psychosocial environment) occurred in the same study, the effects were averaged so that each intervention contributed one effect for each construct.

#### Reliability of coding

Graduate student research assistants did the original coding and a randomly selected 10% of the studies were chosen for independent reliability checks conducted by other students or the first author. Disagreements were resolved through discussion, and acceptable levels of inter-rater reliability were obtained (kappas ranged from .60 to .95).

## Results

The data regarding systems change are complicated because some interventions targeted more than one feature of a system, and could involve more than one of the three relevant microsystems (school, family, or CBO) in the same intervention. As a result, the information is presented in two separate tables. Table 1 summarizes how many interventions attempted to modify one or more of the three

**Table 1** Targets of attempted systems change

Targets	<i>n</i>
<i>Microsystemic targets</i>	
School	
Psychosocial environment (school or classroom)	109
School-wide organizational change	41
Classroom level change	56
Total interventions for school system	128
Family	
Parent training	54
Family environment	36
Total interventions for family	60
Community	
Positive connection to adults	57
Total interventions for community	57
Mesosystem targets	
Family–school	43
Family–community	20
Community–school	20
All three settings	8
Total mesosystem targets	91
Total for all interventions	336

microsystems, or attempted change at the mesosystemic level. As indicated in Table 1, some aspect of the school social system received attention in 128 of the 526 interventions (24%). Several studies attempted change in more than one aspect of the school system. For example, the psychosocial environment of the school was targeted 109 times; classroom level change was attempted 56 times, and efforts at changing the organizational practices of the entire school occurred 41 times among 128 school interventions.

Sixty studies targeted the family system; 54 of these focused specifically on changing parenting practices, and 36 sought changes in the broader family environment. Thirty studies targeted both of these dimensions of family life. In the community realm, there were 57 interventions attempting to forge positive connections between youth and adults.

There were also a total of 91 attempts at mesosystemic change. Most frequently, this occurred by targeting family–school relationships ( $n = 43$ ), but connections were also attempted between families and CBOs ( $n = 20$ ). There were 20 interventions seeking to link communities with schools, which invariably occurred through service-learning programs. Finally, eight interventions sought to link all three mesosystems. Overall, 336 of the 526 interventions (64%) attempted change at the micro- or mesosystemic level.

Table 2 presents information on how many studies assessed their efforts at systems change, and with what results. First, we discuss the former data. Only a subset of studies conducted any quantitative assessment of system change efforts. For example, only 10 and 8 studies assessed the changes that occurred as a result of intervention in the school or classroom psychosocial environment respectively, and only four specifically assessed changes that were targeted in order to change classroom structure and procedures.

Proportionally more interventions involving families assessed their efforts at systemic change; 33 studies contained data on changes in parenting practices whereas 25 provided information on the family environment. However, there were only two studies that assessed youth's connections with adults, and only 6 of the 63 studies trying to forge links between families and schools or CBOs, or between schools and CBOs, conducted any assessments of these links or their effects on the linked systems. There were a total of 121 attempts at measuring micro- or mesosystemic changes. However, in some cases, studies measured more than one of the variables in Table 2 (e.g., some studies assessed parenting practices and the family environment). Overall, 79 of the 336 interventions conducted quantitative assessments of their system change efforts (24%).

The large majority of the measures used to assess system change were questionnaires (85%). The remainder of the assessments consisted of independent behavioral observations, primarily employed to evaluate parenting practices or teachers' classroom behavior. Among the questionnaire measures, 33% were completed by youth, 55% by parents, and the remaining 12% by teachers. As might be expected, child reports were usually used to assess their school's or classroom's psychosocial environment. Parent self-reports were primarily used to assess parenting practices and the family environment. Teacher-supplied data were mainly relevant to the school's psychosocial environment. In terms of the psychometric properties of the assessments, 74% of the methods possessed adequate reliability, and researchers indicated that 48% of the methods possessed construct, predictive, or discriminant validity.

Post mean effect sizes based on system change assessment are contained in the third column of Table 2. Six of the seven post mean effect sizes were statistically significant and ranged in magnitude from 0.34 (for family environment) to 0.78 (for classroom level change). The only nonsignificant (and negative) post mean effect of  $-0.26$  (youths' bonding to community adults), was based on only two interventions. Although the cell sizes for some positive effects are small, two of the mean effects are based on more than  $\geq 25$  studies.

The last two columns of Table 2 indicate that few investigators collected any follow-up data on system

**Table 2** Mean effect sizes for systemic change efforts

Constructs assessed	Post N	Post effect size	Follow-up N	Follow-up effect size
School				
Psychosocial environment: classroom	10	0.47*	1	0.42
Psychosocial environment: school-wide	8	0.74*	0	–
Classroom level change	4	0.78*	0	–
Family				
Parenting practices	33	0.41*	17	0.49*
Family environment	25	0.34*	3	0.94
Community				
Bonding to community adults	2	–0.26	0	–
Mesosystemic linkages				
Family–school relationships	6	0.49*	1	–0.09

*Note.* Interventions could measure more than one outcome

\*Significant at  $p < .05$

change. The exception was for changes in parenting practices, which were examined in 17 studies and produced a significant and moderately large mean effect (0.49).

## Discussion

Current data indicate that PYD outcome researchers have developed many interventions that incorporate social system change as a mechanism to develop and sustain personal and social competencies in children and adolescents. Overall, there were 336 efforts to change schools, families, or communities at the microsystemic or mesosystemic level, representing 64% of the 526 reviewed interventions. Forty-seven per cent of the 526 interventions attempted to modify at least one aspect of a school, family, or community setting, and 17% sought mesosystemic changes by linking families, schools, and CBOs. These numbers are impressive when compared to other research areas in which attempts at system-level change are not as prominent.

For example, Durlak and Wells (1997) reported that only 27 of 177 primary prevention programs for children and adolescents (15%) tried any systems-levels intervention by changing the school or home environment as opposed to working directly with youth. Wilson, Gottfredson, and Najaka (2001) reviewed school-based interventions to prevent or to reduce acting-out behaviors, drug use, theft, and nonattendance or suspension from school. Only 45 of the 216 interventions they identified (21%) attempted system-level school changes through such tactics as establishing new norms and expectations for behaviors, promoting more effective classroom management practices, or developing new school-wide disciplinary procedures.

Furthermore, attempts at mesosystemic change are rare outside the PYD field. For example, Jeynes (2005) could

find only 50 studies out of over 5,000 that were examined (1%) that provided any quantitative data on the impact of parental involvement on urban elementary student achievement. Shepard and Carlson (2003) could find only 20 empirical school-based prevention programs focusing on drug use or behavioral problems that included parents. Finally, Flay (2000) reported on the results of only four drug prevention projects that sought to change both the school and CBOs.

In sum, although psychosocial interventions in many areas have given predominant weight to individual-level as opposed to system-level change, the situation is more balanced in the PYD outcome research reviewed here. PYD theory challenges researchers to recognize the importance of improving the major social systems that affect young people. Current results indicate that PYD investigators have targeted environmental influences, with the most attention given to schools and families. Attempts at systemic change are most commonly exemplified by programs seeking to improve aspects of a school's psychosocial climate, to enhance the family environment or modify parenting practices, to connect young people to prosocial adult models through mentoring relationships and after-school programming, and to forge connections between families, schools, and CBOs.

Most important, interventions that have measured systems-level changes have achieved positive results as reflected in the mean effect sizes reported in Table 2. To our knowledge, this is the first meta-analysis to quantify the magnitude of systems change that occurs through promotion, prevention or clinical treatment interventions for children and adolescents. Although based on a small subset of all reviewed interventions, the mean effects achieved in these studies indicate that attempts at system change have

been successful. These results are impressive because most would agree that modifying systems is more difficult than changing individuals. Nevertheless, the positive mean effect sizes reflecting system change in Table 2 compare favorably to those obtained on outcomes assessing individual-level change that have been reported in many prevention programs (Durlak & Wells, 1997; Tobler et al., 2000; Wilson et al., 2001). The finding that the magnitude of change that occurs at the systemic level can be as great as that achieved at the individual level should encourage others to devote more attention to evaluating their efforts at systems change.

Unfortunately, many more researchers have attempted system changes than have assessed if and to what extent systemic change has been attained through intervention. For example, although it is heartening that there were 109 attempts to improve the psychosocial environment, only 18 interventions (17%) assessed quantitatively if the classrooms' or schools' psychosocial environment had changed in the desired way. There have been attempts to assess mesosystemic change. Family researchers have evaluated proportionally more efforts at system change. Even here, however, only approximately two-thirds of the reports provided data to ascertain if parenting practices or the family environment improved over time. Overall, only 24% of the interventions (79 of 336) seeking systems change provided quantitative data relative to achieving these goals.

For inclusion in our larger project, each reviewed study had to include some outcome measure focusing on the child. Preliminary findings of universal interventions indicate that youth benefit in several ways from PYD programs, that is, they display significantly more positive behaviors, significantly fewer negative behaviors, and, in some programs, show significantly improved school performance (Durlak & Weissberg, 2005; Weissberg et al., submitted). Without sufficient data on concurrent system changes, however, it is impossible to ascertain if modification of the social system contributed to the above child outcomes.

Future research can be improved in several ways to clarify the contribution of systemic change to program outcomes. In general, there is a need for careful assessment of social systems, data on program implementation, and mediational analyses connecting changes in systems to changes at the individual level. Follow-up studies are also needed, and researchers should involve youth as active contributors to changing social systems.

Many of the interventions in the current review used reliable and valid system measures, often because they were able to take advantage of assessment methods developed by others. This is much easier than developing new measures whose psychometric properties have to be

evaluated. Acceptable measures are available to assess the psychosocial environment of classrooms and families (e.g., Gorall & Olson, 1995; Moos, 1979). However, documenting the impact of school-wide change and mesosystemic interactions is more challenging because measurement of these issues is much less advanced. For example, no measures have been developed to evaluate the impact of service learning projects on schools and CBOs, or to assess the connections that form between cooperating organizations (Conrad & Hedin, 1989). Similarly, although many interventions attempt to increase parental involvement in schools and CBOs, there is little precedent on how to assess these relationships or their impacts on involved groups.

A few studies from our review indicate effective ways that investigators have dealt with the challenges of assessing systemic change. One successful strategy is to select, adapt, or develop measures that are directly relevant to the theoretical basis of the intervention. For example, one group of researchers used both classroom observations and teacher questionnaires that were specifically developed to evaluate the extent to which potentially important elements of a school-wide intervention, the Child Development Project changed over time (Battistich, Schaps, Watson, Solomon & Lewis, 2000). These measures assessed such dimensions as teachers' support and reinforcement of prosocial behavior, and their promotion of student autonomy, influence, and self-direction in the classroom. Analyses confirmed that the effective delivery of key program elements as detected by the observational and questionnaire data was associated with students' improvement on several outcomes.

A similar, theoretical, multi-measure approach was taken by another group attempting school-wide change (Gottfredson, Gottfredson, & Hybl, 1993). This project sought to clarify school rules, improve classroom organization and management, reinforcement students' prosocial behavior, and diminish the school's punitive approach in dealing with students. Classroom environment surveys were completed by students and teachers, and students completed an additional questionnaire about their perceptions of school. These instruments specifically evaluated key elements of the intervention (e.g., Did teachers perceive more order in the classroom? Did students feel their classroom and school were more supportive, reinforcing and less punitive? Were school rules clear, fair, and evenly enforced?). Comparisons with control schools indicated the intervention was effective in changing the psychosocial environment of participating schools in expected ways and students in the latter schools improved on several outcomes.

Finally, the Better Beginnings, Better Futures Project is unique in our review as a large-scale community based

intervention that used participatory research methods to target all three microsystems: families, schools, and CBOs. (Peters, Petrunka & Arnold, 2003). This large, multi-site Canadian investigation involved local residents in first designing and then helping to implement interventions uniquely suited to their local communities. Although the interventions that were developed over a 5-year period differed from site to site, emphasis was generally placed on children's school performance, enhancing family life, and establishing and coordinating needed community-based services. Results varied depending on the site and outcomes assessed, but, in general, positive changes were noted in children's school behavior, school competencies and problem behaviors, and in parenting practices and family functioning. Many of these changes have persisted at a three-year follow-up (R. DeV. Peters & K. Petrunka, personal communication, February, 17, 2005). The project collected information in terms of mesosystemic change on such dimensions as parents' relations with school, their use and evaluations of newly developed community services, involvement in community activities, sense of belonging to and pride in their community, and their perceived quality of their neighborhood. Further refinements and extensions of such assessments can begin to capture some of the mesosystemic linkages that occur in community programs.

Which method of assessing systemic change is best? In addition to basic considerations involving psychometric and ecological validity, the choice of assessment methods should be guided by specific research questions. These questions include, among other things, what type of change is sought in which aspect or aspects of the system, and what does the theory of intervention say about how such changes would be manifested? The most suitable assessment methods can be applied only after these important questions are formulated. For example, Battistich et al. (2000) indicated they added specially constructed teacher questionnaires because they did not believe classroom observations could capture all the unique aspects of the intervention. Data indicated that the teacher questionnaires were helpful in distinguishing the processes occurring in intervention and control schools.

Changing social systems is difficult. School-wide change takes time and requires the support of school leaders and the involvement of a sufficient number of staff to modify the broad social system. Modifying the family system requires sensitivity to each family situation and assumes that the practical problems related to recruiting and retaining family members have been resolved. To our knowledge, no articles have appeared stressing how easy it is to change communities.

The ambitious character of social system change underscores the importance of program implementation, which, in general, refers to how well and to what extent

intended aspects of an intervention are conducted as planned. There is now extensive empirical data to support the conclusion that implementation influences the outcomes of promotion and prevention programs for youth (Durlak & Dupre, *in press*). Several studies in our review underscore the value of monitoring implementation and interpreting outcomes in terms of levels of implementation. For example, Cook et al. (1999) found that few positive effects occurred following the introduction of Comer's school development program, but they noted that diminished program impact could be due to failures in program implementation. Specifically, most of the participating schools did not implement the majority of the program's central elements. Similarly, other authors attempting school-wide change have reported modest overall intervention effects, but much stronger positive effects in those schools in which the intervention was implemented more successfully (Battistich et al., 2000; Battistich, Shaper, & Wilson, 2004; Gottfredson, 1986; Solomon et al., 2000).

When positive results are obtained at both the systemic and individual level, it is important to conduct analyses to examine if the former may be responsible for the latter effects. The assumption that the modified social system is at least partly responsible for individual level outcomes must be confirmed. Three studies illustrate successful ways to document empirical links between system change and youth outcomes. One group of researchers sought to change several teaching practices through staff development workshops (Harachi, Abbott, Catalano, Haggerty, & Fleming 1999). Classroom observations during the course of a subsequent school-based intervention were used to determine that hypothesized behavioral differences did occur between intervention and control teachers. Analyses of these data confirmed that intervention teachers did change significantly and differed in their classroom approach from control teachers. Hierarchical linear analyses then indicated that intervention students' improvements in social competencies and bonding to school were significantly related to new strategies used by classroom teachers. In a family intervention designed to help children of divorce and their mothers, Wolchik et al. (1993) used structural equation modeling to confirm that one of the hypothesized mediators in a parent intervention, namely, improvement in the mother-child relationship, accounted for 43% of the reduction in child problem behaviors. Lastly, developers of the Child Development Project have used structural equation modeling to demonstrate that the improvements in the psychosocial environment of the school that were obtained during intervention mediated almost all of the outcomes demonstrated by students (Solomon et al., 2000). Future empirical documentation of the influence of system change on individual-level change should encourage others to strike a better balance in their

interventions between working directly with youth and trying to modify their social settings.

Except for the 17 programs assessing parenting practices, few investigators have reported any follow-up data on system change. It would be compelling to demonstrate that system-level change persists because such data would enhance the value of interventions. For example, if positive changes in organizational practices and procedures of schools and CBOs are sustained over time, such changes should continue to affect successive cohorts of youth involved in these settings. Therefore, more researchers should strive to collect follow-up data on the extent to which systemic change achieved during intervention endures over time.

Youth should not be overlooked as important contributors to system change. There was one controlled outcome study in our review of a youth-directed intervention (Kenney & Watson, 1996). This intervention was a school-wide effort to improve safety, but high school students were in charge. In the first phase of this project, teachers instructed students in a general problem-solving approach as a way to address social problems. Several student groups were then formed, and each developed their own strategies to address issues regarding school safety, fighting, and interpersonal conflict around the school campus. Student surveys indicated that students at the intervention school felt safer, reported less fighting, and witnessed fewer signs of violence and interpersonal conflict than those at a neighboring control school. Teachers also reported feeling safer and reported less physical or verbal intimidation or loss of property following the intervention. More studies are needed of attempts to empower youth to take the initiative in changing systems.

The primary purpose of this article was to provide an overview of efforts at social system change in PYD programs, and its limitations should be mentioned. The current review does not include all youth programs incorporating some type of systems change. For example, some drug prevention and physical health promotion initiatives have targeted community-level change through the development of community coalitions and task forces, as well as through policy change. These interventions involve such systemic targets as enactment and enforcement of new laws prohibiting the sales of alcohol and tobacco to minors, the substitution of more nutritious foods in school cafeterias, or community-wide health initiatives (Jason, Pokorny, Kunz & Adams, 2003; Johnson & Flay, 1990; Perry et al., 1996; Simons-Morton, Parcel, & O'Mara, 1988). Furthermore, the current review did not include case studies and qualitative reports that may provide useful insights into the processes of systemic interventions. For example, Ho (2002) described the results of a participatory approach in creating a strong family–school partnership in an ethnically

diverse school. Parents and teachers participated in the development of interventions that improved family–school communication, encouraged more parental support of their child's academic work, and helped parents become more comfortable in their contacts and relationships with the school.

The European Network of Health Promoting Schools has fostered re-examining school practices and policies in order to empower students and promote their active participation in the learning process. Simovska (2004) provided qualitative evidence regarding the positive impact of participatory methods that empowered students in three Macedonian schools to exercise more control over their schools' procedures, activities, and policies.

In addition, although we found only two community studies that assessed the quality of the personal connections formed between adults and youth, this was probably because our review was restricted to youth without any presenting problems. The mentoring relationship has been examined in other outcome studies (see DuBois, Holloway, Valentine & Cooper, 2002), and measures exist that assess the growth-enhancing aspects of a mentoring relationship (Liang, Tracy, Taylor, & Williams, 2002). These measures can be adapted to assess connections that form between youth and other adults during interventions.

Finally, coding procedures identified seven different possibilities regarding system-level change, but these were not intended to be exhaustive or definitive. Current categories might be altered or new ones added to provide another perspective on PYD interventions that attempt systemic change. Others might employ stricter criteria to identify or evaluate system change. For example, many advocates for systemic change would emphasize that modifying social policies and norms, transforming organizational practices and procedures, empowering citizen groups, and creating and sustaining active community coalitions can produce large-scale positive changes in community life. Unfortunately, these types of systemic interventions were either missing from our review or, in the few instances when they did occur, lacked data on whether systemic influences were modified as intended. It remains to be seen if the next generation of youth programs can rise to the challenge of targeting and measuring these ambitious and needed efforts at systems change.

In conclusion, the work of many PYD researchers is consistent with the notion that modifications are needed in the major social environments that affect youth. Numerous attempts have been made to change different aspects of children's and adolescents' school, family, or community life. Moreover, studies containing quantitative data have indicated that efforts at system change have been successful. These data also suggest that as much change can occur in systems as occurs at the individual level if

researchers concentrate on achieving system change. Further research is warranted to document the systemic changes that are achieved by interventions for children and adolescents, and to investigate how such changes contribute to the development and sustainability of different personal and social competencies.

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